



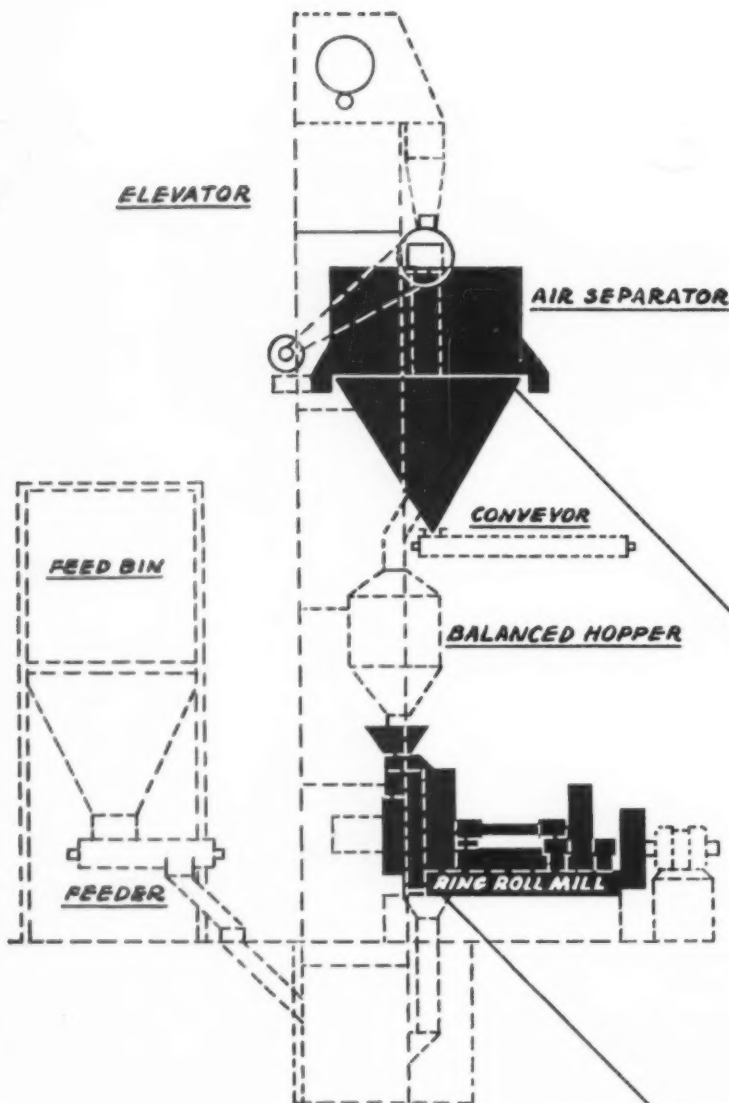
THE INDUSTRY'S RECOGNIZED AUTHORITY

ROCK PRODUCTS

LARGEST NET PAID CIRCULATION IN THE FIELD

CONVERTING PLANT DESIGNS TO REALITY
—INDUSTRY'S 1947 OBJECTIVE

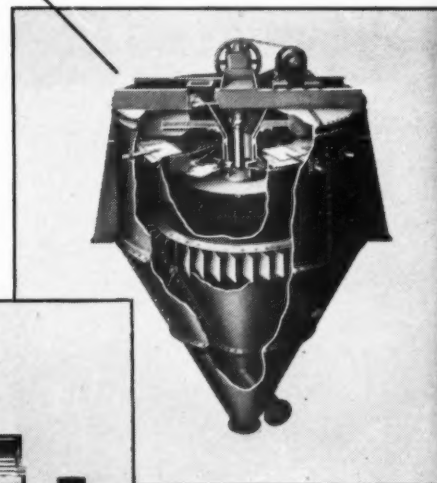
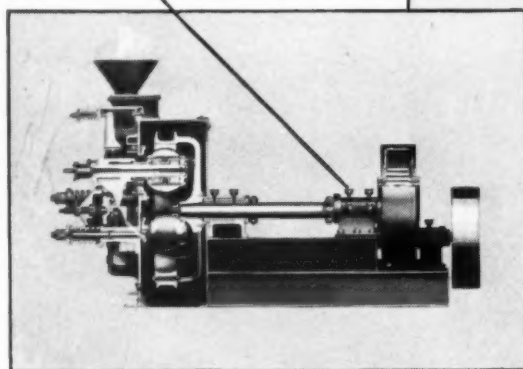
ANNUAL DIRECTORY AND OUTLOOK ISSUE • JANUARY, 1947



The
RIGHT
 Combination
*For Top Tonnage
 at Reduced Costs*

STURTEVANT

*Air Separators
 and
 Ring Roll Mills*



WHIRLWIND AIR SEPARATOR
 Capacities $\frac{1}{4}$ to 50 tons per hour.
 Range 40 to 325 mesh or finer.

RING ROLL MILL
 Capacities 12 to 18 tons per hour.
 Range 10 to 200 mesh.

Here's a combination for finer ground limestone, lime and hydrate with maximum efficiency . . . Sturtevant air separators and Ring Roll Mills in closed circuit.

The ring roll mill crushes either hard or soft materials for medium or fine reductions (10 to 200 mesh). The air separator efficiently carries off all classified material in any desired range from 40 to 325 mesh or finer. The combination increases output up to 300% . . . saves in power cost up to 50%.

You should consider the tonnage and controlled product benefits of Sturtevant Equipment. Write for full infor-

mation and catalogs. Sturtevant Engineers are available for consultation on your grinding and separating problems. Their services are obtainable without obligation.

STURTEVANT

MILL COMPANY

41 Harrison Square, Boston 22, Mass.

Designers and Manufacturers of

CRUSHERS • GRINDERS • SEPARATORS • CONVEYORS
 MECHANICAL DENS and EXCAVATORS • ELEVATORS • MIXERS

CONVEYORS



Link-Belt belt conveyor (above) and apron conveyor (below) illustrating two of the many types available for handling sand, gravel, stone and other non-metallics.

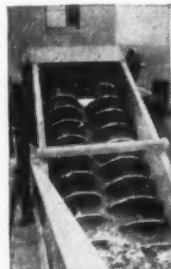


CLASSIFIERS

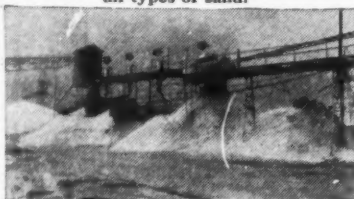
Link-Belt Dewatering Flight Conveyor.



Link-Belt Dewatering Screw Conveyor available in either single or double screw units.



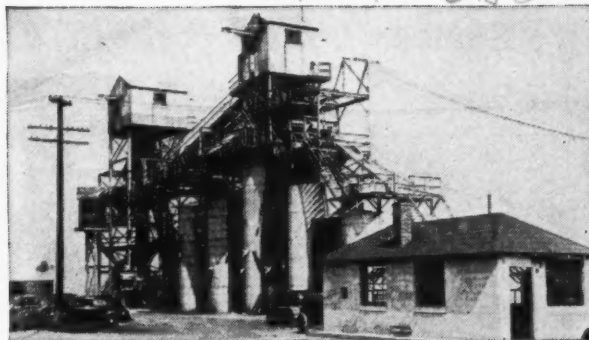
The ROTOSCOOP, an efficient, compact, self-contained dewatering unit for all types of sand.



Shaw Classifier to clean and classify sand. Will also make such special grades as asphalt, filter, engine, gypsum and glass sand.



Automatic Conical Sand Separator. A practical, low-cost, thoroughly reliable unit.



T-System * Gains Yardage in Sand and Gravel Preparation

Never was construction more in demand, and never was efficiency in producing construction materials more important. With labor and other costs high, it might well be that super efficiency in sand, gravel and crushed stone production — through integrated layout of plant and units — could mean the difference between profit and loss.

Link-Belt engineers can cut production corners, because of vast experience in the design and manufacture of equipment for handling and preparing non-metallic minerals, assuring highest efficiency and a saving in time and money.

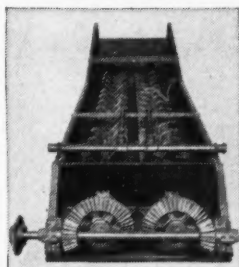
Let us talk over your problem, whether you are interested in a new plant or equipment for modernization of present layout.

* Teamwork; integrated equipment.

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.

WASHERS and SCRUBBERS

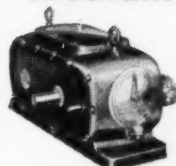


Double paddle washer for gravel and stone.

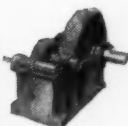


Preliminary scrubber at head of inclined conical screens.

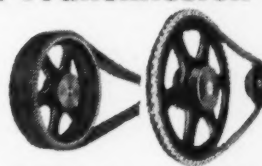
Mechanical Power Transmission



P.I.V. Gear Speed Changer.



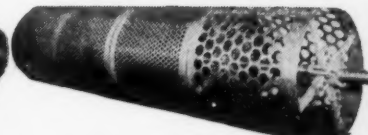
Herringbone Gear Reducer.



Silverstreak Silent Chain Drive.



Silverlink Roller Chain Drive.



Discharge end of 48" diameter center shaft cylindrical screen. Four arm spiders with steel arms and cast steel split hubs. Plates may have one or several sizes of perforations. Length 6 feet to 16 feet.

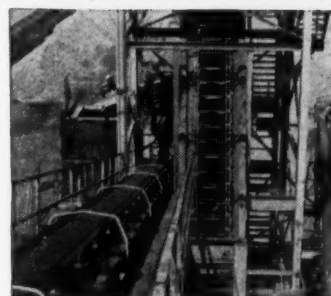


Discharge end of trunnion type screen mounted on wood frame. Thrust bearing adjustable to make bevel gears mesh properly.

ELEVATORS



Inclined Continuous Bucket Elevator handling sand, gravel and stone. One of many types of Link-Belt bucket elevators for handling all materials.

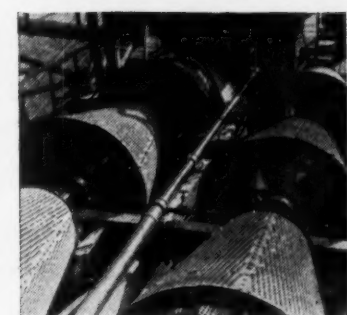


Dewatering Bucket Elevator.

SCREENS



Link-Belt vibrating screens are made in several types for fine and coarse screening.



Link-Belt Inclined Conical Washing Screens.

LINK-BELT

SAND AND GRAVEL HANDLING AND PREPARATION EQUIPMENT

ROCK PRODUCTS

JANUARY, 1947

THE INDUSTRY'S RECOGNIZED AUTHORITY

VOL. 50, No. 1

Bror Nordberg
Editor

Charles Hoefer, Jr.
Manager

Nathan C. Rockwood
Editorial Consultant

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It rides like a cloud— on B.F. Goodrich rubber springs

A typical example of B. F. Goodrich product development

CALIFORNIA bus riders are now enjoying a new kind of velvet-ride comfort on rubber springs in this two-section "articulated" bus, along with such luxuries as lavatories, extra spacious head and leg room, foam rubber seats, and scenery-level windows. The manager of the bus line says this big 40-passenger unit rides better than any other motor vehicle on the road. Here's how it happened:

Years ago, B. F. Goodrich engineers (who believe that *anything* can be improved) had found it possible to absorb shock and vibration in factories by mounting heavy machines

on rubber. Why not try to do the same thing for cars and busses with a rubber spring? They did—and came up with the spring that will add more to your riding comfort than anything since the air-filled tire replaced the solid tire years ago.

The spring consists of a metal cylinder filled with rubber, with a shaft in the center—with the rubber firmly bonded to both cylinder and shaft. The weight of the bus connected to the shaft makes it turn inside the cylinder, gives a twisting action to the rubber. Bumps and road shocks are smothered by the twisting rubber *before* they reach the bus frame.

In addition to rubber springs, this new Kaiser Coach is equipped with a lot of other B. F. Goodrich products—tires, Koroseal upholstery and floor covering, Koroseal and metal bellows between sections, and many more; a few of the hundreds of B. F. Goodrich developments that have brought increased comfort, safety and efficiency to the American people and American industry. *The B. F. Goodrich Company, Industrial Products Division, Akron, Ohio.*

Koroseal—Trade Mark, Reg. U. S. Pat. Off.

B.F. Goodrich
FIRST IN RUBBER



FEBRUARY, 1947

ROCK PRODUCTS

THE INDUSTRY'S RECOGNIZED AUTHORITY



VOL. 50, No. 2

Bror Nordberg
Editor**Stanley A. Phillips**
Manager**Nathan C. Rockwood**
Editorial Consultant

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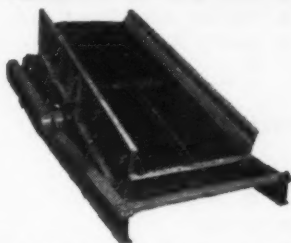
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LINK-BELT PREPARATION UNITS

for higher efficiency—lower production costs

VIBRATING SCREENS

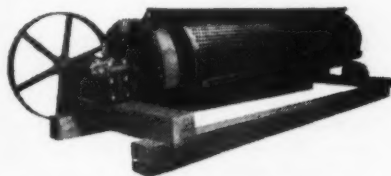


Link-Belt builds all types and sizes of vibrating screens for sand-gravel-stone and other non-metallics.

CONICAL WASHING SCREENS



For screening and scrubbing with low operating and maintenance cost.



REVOLVING SCREENS

Available in a wide range of sizes and capacities — plates with one or several sizes of perforations.



SCRUBBERS

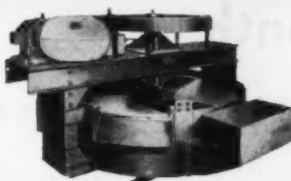
In combination with screens, Link-Belt scrubbers offer efficient and low-cost cleaning.



SHAW SAND CLASSIFIERS

For cleaning and classifying sand. Will also make such special grades as asphalt, filter, engine, gypsum and glass sand.

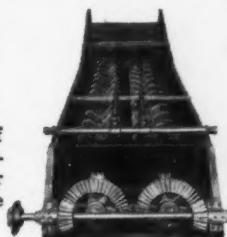
DEWATERING ROTOSCOOP



An efficient, compact, self-contained dewatering unit for all types of sand.

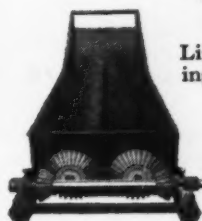
LOG AND SCREW WASHERS

A number of types of Link-Belt washers for gravel and stone are available.



DEWATERING CONVEYORS

Link-Belt Dewatering Screw Conveyor available in either single or double screw units. Link-Belt Dewatering Flight Conveyors are also available.



• The stringent specifications for sand, gravel, and stone require accurate separations. With the tremendous demand for construction materials, it is important that you have the most efficient and lowest-cost equipment.

Let us talk over your problem, whether you are interested in a new plant or equipment for modernization of present layout.

LINK-BELT COMPANY

Chicago 9, Indianapolis 6,
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Minneapolis 5, San Francisco 24,
Los Angeles 33, Seattle 4, Toronto 8.

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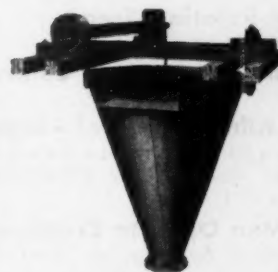
10,000

BELT CONVEYORS



Link-Belt belt conveyors have long been known for high performance and low-cost operation. We also manufacture all accessories such as trippers, belts, pulleys, bearings, take-ups, etc.

SAND SEPARATORS



Automatic conical sand separators for practical, low-cost, thoroughly reliable separation.

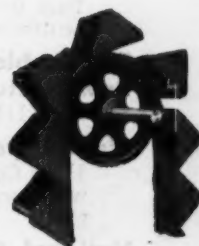


DIGGING ELEVATORS

A low-cost method of picking up sand and gravel from primary sump. Designed for long wear.

BUCKET ELEVATORS

Available in many types to suit various service requirements.



FEEDERS

Link-Belt feeders are made in the apron, belt, grizzly and reciprocating types.



LINK-BELT

SAND AND GRAVEL HANDLING AND PREPARATION EQUIPMENT



Bror Nordberg
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Stanley A. Phillips
Manager

Nathan C. Rockwood
Editorial Consultant

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An "underground movement" that is 8 years old

A typical example of B. F. Goodrich product development

MINE cars aren't much good in a mine where the seam of coal is thin. To make room for the cars you have to blast and haul out more rock than coal. And that's costly. So for many years a lot of good coal never saw the light of day.

Conveyor belts were obviously the answer. But, to stand the pull of carrying thousands of tons of coal over long distances, the belts had to be made so heavy and stiff that they wouldn't form a trough except when loaded with coal. But belts run empty part of the time.

Then they flatten out, climb the rollers and tear themselves to death.

A few years ago B. F. Goodrich engineers developed a new kind of conveyor belt for heavy duty service. It's made of individual lengthwise cords surrounded by rubber to cushion heavy shocks. But it's light and extremely flexible. Eight years ago one of these cord belts was placed in service in a West Virginia mine. It proved to be the perfect answer for underground mining. It stood the impact of large lumps of coal yet formed a perfect

trough and stayed on the rollers even when the belt was empty. That first belt is still in service—along with hundreds of others which have been installed since. It's a typical example of the B. F. Goodrich product development that has brought efficiency and economy to every part of American industry. *The B. F. Goodrich Company, Industrial Products Division, Akron, Ohio.*

B. F. Goodrich
FIRST IN RUBBER



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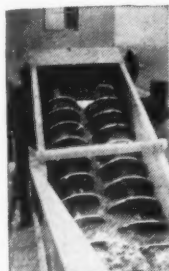
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CLASSIFIERS

Link-Belt Dewatering Flight Conveyor.



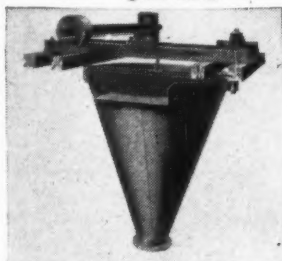
Link-Belt Dewatering Screw Conveyor available in either single or double screw units.



The ROTOSCOOP, an efficient, compact, self-contained dewatering unit for all types of sand.

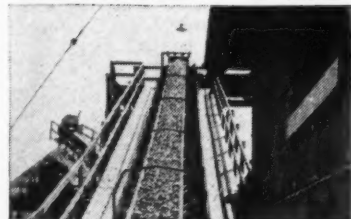


Shaw Classifier to clean and classify sand. Will also make such special grades as asphalt, filter, engine, gypsum and glass sand.

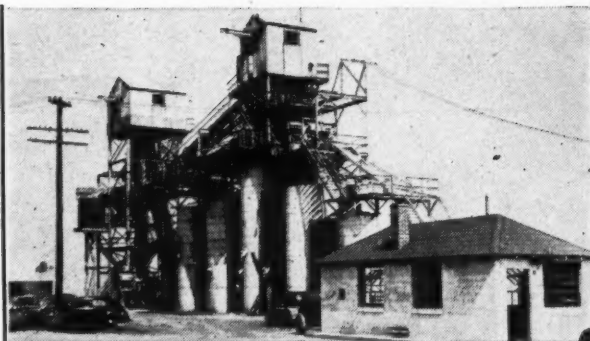


Automatic Conical Sand Separator. A practical, low-cost, thoroughly reliable unit.

CONVEYORS



Link-Belt belt conveyor (above) and apron conveyor (below) illustrating two of the many types available for handling sand, gravel, stone and other non-metallics.



MUCH MORE than a PRODUCTION "STORE"

You won't see it on the "shelves", but one of the big items in the Link-Belt production "store" is the know-how in engineering and equipping sand, gravel and stone plants for high efficiency and high capacity, with consequent profit-level production costs.

Let us talk over your problem, whether you are interested in a new plant or equipment for modernization of present layout.

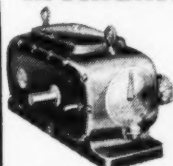
LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities. 10,578

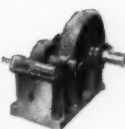
LINK-BELT

SAND AND GRAVEL HANDLING AND PREPARATION EQUIPMENT

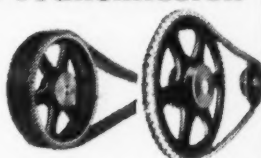
Mechanical Power Transmission



P.I.V. Gear Speed Changer.



Herringbone Gear Reducer.

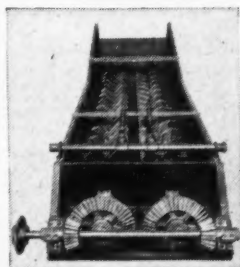


Silverstreak Silent Chain Drive.



Silverlink Roller Chain Drive.

WASHERS and SCRUBBERS



Double paddle washer for gravel and stone.

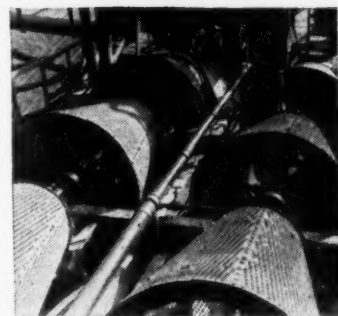


Preliminary scrubber at head of inclined conical screens.

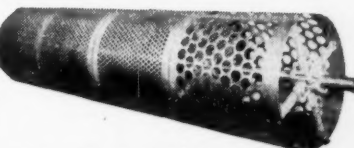
SCREENS



Link-Belt vibrating screens are made in several types for fine and coarse screening.



Link-Belt Inclined Conical Washing Screens.



Discharge end of 48" diameter center shaft cylindrical screen. Four arm spiders with steel arms and cast steel split hubs. Plates may have one or several sizes of perforations. Length 6 feet to 16 feet.

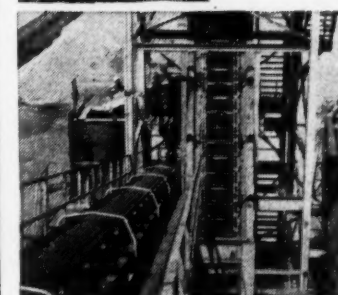


Discharge end of trunnion type screen mounted on wood frame. Thrust bearing adjustable to make bevel gears mesh properly.

ELEVATORS



Inclined Continuous Bucket Elevator handling sand, gravel and stone. One of many types of Link-Belt bucket elevators for handling all materials.



Dewatering Bucket Elevator.



Bror Nordberg
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Stanley A. Phillips
Publication Manager

Nathan C. Rockwood
Editorial Consultant

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It soaked up the shock of 10 million crashing tons

A typical example of B. F. Goodrich product development

IT WAS only a 390 foot haul—but it proved to be a costly one. Huge hunks of coal had to be carried from a railroad siding to a barge dock on the river bank below. A belt conveyor system was the obvious answer. So one was built and put into service.

Everything was fine—until the belt wore out before it had carried 4 million tons. Now that much coal will heat a lot of houses. But it wasn't enough to make the belt a good investment. The second belt was even worse—just over 3 million. And the third one, which went 5½ million tons, still

added too much to the cost of the coal.

Then the coal company—and the mining industry—got a break. B.F. Goodrich belting engineers developed a new kind of belt in which hundreds of individual cords—each completely embedded in rubber—replaced the usual stiff fabric "carcass." They added a top ply with the cords running across the belt. When heavy hunks of material hit the belt it "gives" in both directions—absorbs the shock instead of fighting it. One of these cord belts was installed to carry the coal to the barge dock. Up to now it has handled

over 10 million tons and is still in service.

No one knows yet just how much the cord belt will reduce handling costs for this company. But there are records of other cord belts which have lasted 10 times as long as conventional belts—each one a typical example of the results of B.F. Goodrich research and product development. *The B.F. Goodrich Company, Industrial Products Division, Akron, Ohio.*

B.F. Goodrich
FIRST IN RUBBER



Bror Nordberg
Editor

Stanley A. Phillips
Publication Manager

Nathan C. Rockwood
Editorial Consultant

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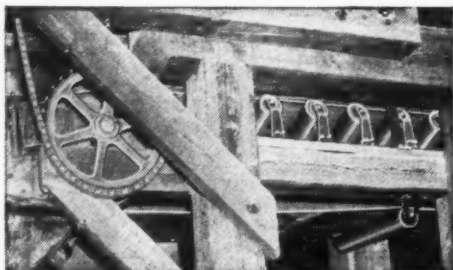
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How Engineering Selection and Design of **BELT CONVEYORS** Improve **PERFORMANCE**

SUCCESS of Link-Belt belt conveyor installations in raising production rates and cutting handling costs, with a minimum of maintenance, is due not only to the most advanced design and construction of Link-Belt carrying and return idlers, but also to:

- properly designed terminal drive machinery.
- efficient discharge chutes at terminal and discharge points.
- a design of welded steel pulleys that reduces shaft deflection.
- highest mechanical efficiency in speed reducers, direct coupled or chain driven.
- engineering experience to produce the proper relationship between pulley diameter and ply thickness of belt; also between size of material handled and conveyor belt width, equality of rubber covering, carcass specifications, etc.

The user gets the benefit of this experience when he selects Link-Belt belt conveyor equipment—idlers, trippers, drives, pulleys, bearings, take-ups, belts.

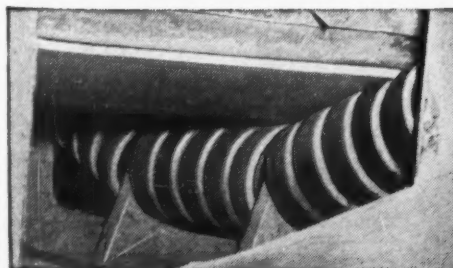


Photographs taken at plant of Northwest Magnesite Company, Chewelah, Washington, producing raw material for refractory brick.



Top, right: L-B belt conveyor carries magnesite ore from mine dump to crushing plant.

Top, left: Drive end and discharge chute of L-B belt conveyor.



Center, left: L-B rubber tread idlers on return flight of belt, loosen and remove sticky material clinging to belt.

Bottom, left: L-B impact idler, giving cushioned support of belt at loading point. Greatly lessens wear on belt.



Link-Belt makes a wide variety of conveyors and elevators of every type for handling sand, gravel, stone and other non-metallic minerals as well as a complete line of power transmission units such as chain drives, speed reducers, speed variators, ball and roller bearings, clutches, couplings, etc. Also preparation equipment such as screens, scrubbers, sand classifiers and washers.

Our engineers offer unbiased, experienced advice in planning layouts and selecting equipment.

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Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.

10,572 B



LINK-BELT Conveyors

A TYPE FOR EVERY KIND OF MATERIALS HANDLING



Bror Nordberg
Editor

Stanley A. Phillips
Publication Manager

Nathan C. Rockwood
Editorial Consultant

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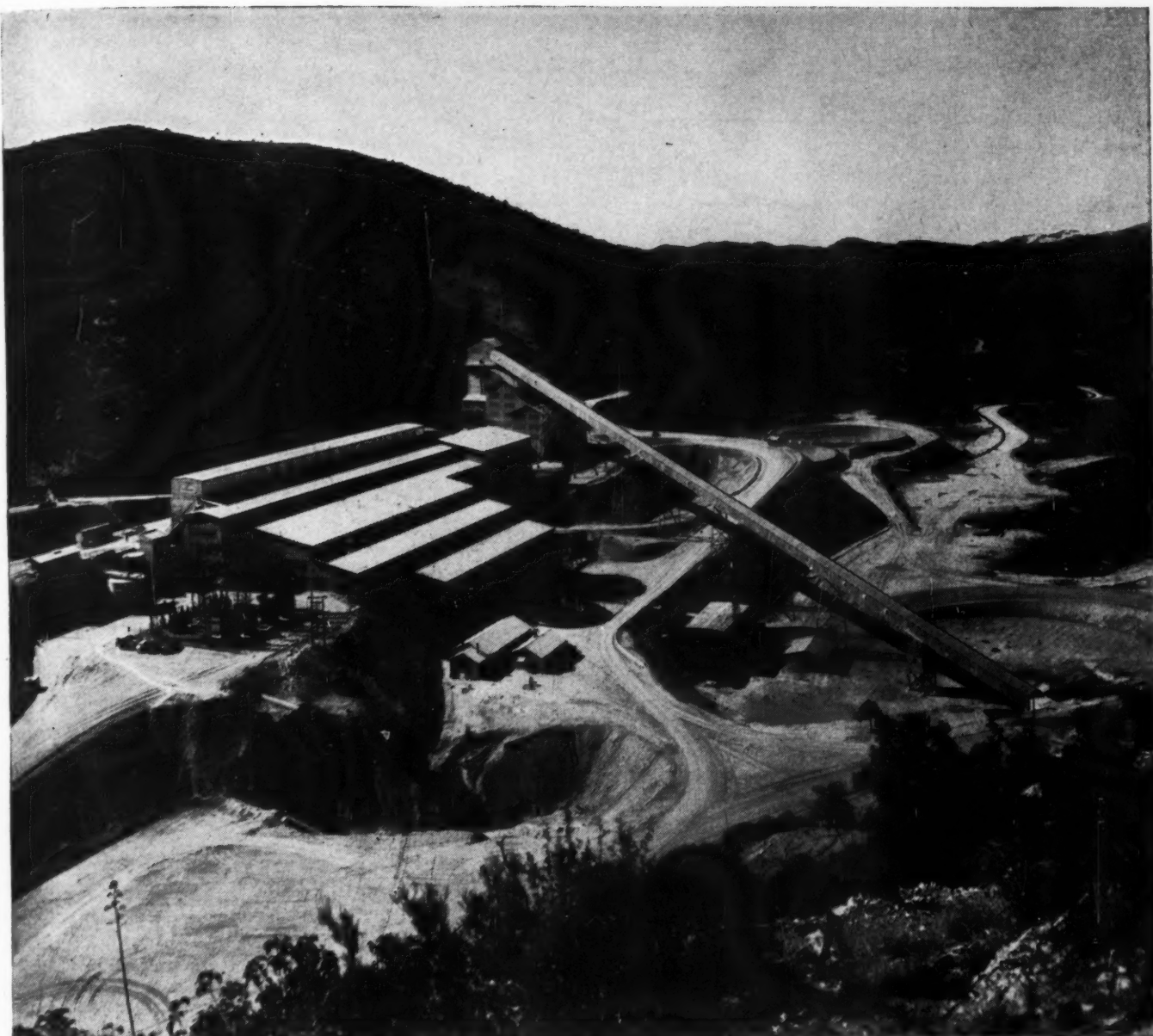
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15 million tons climb a mountain—on rubber

A typical example of B. F. Goodrich product improvement

THAT long incline houses a rubber escalator that goes from 140 feet underground to a point half as high as the mountain. It has carried 15 million tons of jagged copper-bearing rock—and is still good for many millions more.

Lifting rock to a crusher plant has always been a problem. Conveyor belts were used but the constant flow of sharp rock cut and tore the rubber and stiff fabric, of which these belts were made. B. F. Goodrich engineers set

out to develop a belt that would stand the punishment.

First they replaced the woven fabric of the usual conveyor belt with thousands of individual cords encased in rubber. When rocks hit this belt, the cords can spread and soak up the shock instead of stiffly standing—and wearing—as former belts did.

This new type of belt was put into service and soon was establishing new records of performance—5, even as much as 10 times the life of former

belts. At the mine in the picture, the new B. F. Goodrich "cord belt" as it is called has already lifted 15 million tons and looks as good as new.

This is the sort of development that goes on constantly at B. F. Goodrich and that makes it good business to find out what improvements BFG has made lately in the rubber products you buy or could buy, to your advantage. *The B. F. Goodrich Company, Industrial Products Division, Akron, Ohio.*

B.F. Goodrich
FIRST IN RUBBER



AUGUST, 1947

ROCK PRODUCTS

THE INDUSTRY'S RECOGNIZED AUTHORITY



VOL. 50, No. 8

Bror Nordberg
Editor**Stanley A. Phillips**
Publication Manager**Nathan C. Rockwood**
Editorial Consultant

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CONVEYORS

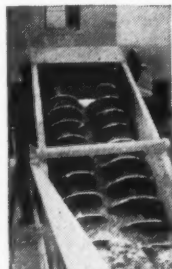


Link-Belt belt conveyor (above) and apron conveyor (below) illustrating two of the many types available for handling sand, gravel, stone and other non-metallics.



CLASSIFIERS

Link-Belt Dewatering Flight Conveyor.



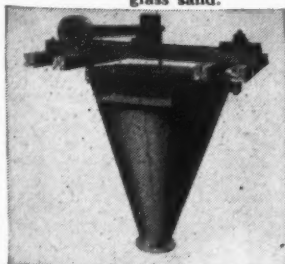
Link-Belt Dewatering Screw Conveyor available in either single or double screw units.



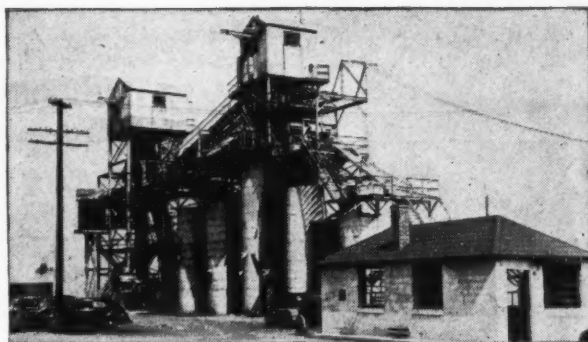
The ROTOSCOOP, an efficient, compact, self-contained dewatering unit for all types of sand.



Shaw Classifier to clean and classify sand. Will also make such special grades as asphalt, filter, engine, gypsum and glass sand.



Automatic Conical Sand Separator. A practical, low-cost, thoroughly reliable unit.



T-System* Gains Yardage in Sand and Gravel Preparation

Never was construction more in demand, and never was efficiency in producing construction materials more important. With labor and other costs high, it might well be that super efficiency in sand, gravel and crushed stone production—through integrated layout of plant and units—could mean the difference between profit and loss.

Link-Belt engineers can cut production corners, because of vast experience in the design and manufacture of equipment for handling and preparing non-metallic minerals, assuring highest efficiency and a saving in time and money.

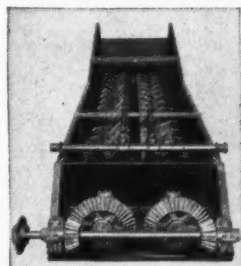
Let us talk over your problem, whether you are interested in a new plant or equipment for modernization of present layout.

* Teamwork; integrated equipment.

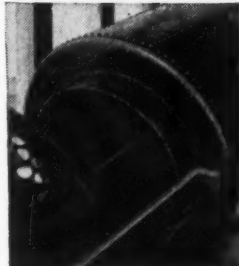
LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.

WASHERS and SCRUBBERS

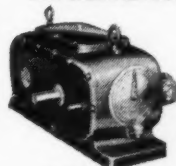


Double paddle washer for gravel and stone.



Preliminary scrubber at head of inclined conical screens.

Mechanical Power Transmission



P.I.V. Gear Speed Changer.



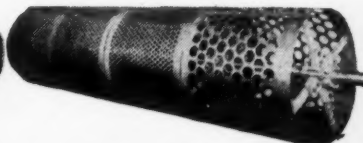
Herringbone Gear Reducer.



Silverstreak Silent Chain Drive.



Silverlink Roller Chain Drive.



Discharge end of 48" diameter center shaft cylindrical screen. Four arm spiders with steel arms and cast steel split hubs. Plates may have one or several sizes of perforations. Length 6 feet to 16 feet.



Discharge end of trunnion type screen mounted on wood frame. Thrust bearing adjustable to make bevel gears mesh properly.

ELEVATORS



Inclined Continuous Bucket Elevator handling sand, gravel and stone. One of many types of Link-Belt bucket elevators for handling all materials.

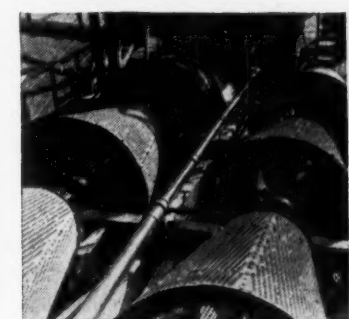


Dewatering Bucket Elevator.

SCREENS



Link-Belt vibrating screens are made in several types for fine and coarse screening.



Link-Belt Inclined Conical Washing Screens.

LINK-BELT

SAND AND GRAVEL HANDLING AND PREPARATION EQUIPMENT



Bror Nordberg
Editor

Stanley A. Phillips
Publication Manager

Nathan C. Rockwood
Editorial Consultant

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How water climbs a ladder

A typical example of B.F. Goodrich product improvement

AT SOME fires the water has to go high. Firemen have to draw hose up narrow ladders. And they have to do it in seconds.

Fire hose used to be heavy, bulky; it took too much strength and time to lift and carry; it wasted those precious seconds that often determine whether or not lives and property can be saved.

B.F. Goodrich, with more experience in fire hose design and making than any other company, set out to improve this old, standard product and came up with something almost com-

pletely new: a new way of twisting the cords to make them stronger; a new rubber compound that is lighter yet stronger, and lasts longer as well; a new way of weaving the cotton jacket that gives greater strength with smaller cords, and no weak spots; in fact, a new fire hose that is 18% lighter yet stronger than ever before; a hose that gets into action faster.

Just for good measure, they developed a new *Koroseal* gasket that can be tightened by hand—cuts coupling time in half, a new and stronger end

construction near the coupling where failures used to be common, and a new treatment to prevent mildew.

This often happens at B.F. Goodrich when engineers set out to improve a "standard" product. That's why it pays to ask your distributor what new developments in rubber B.F. Goodrich has made lately in any products you may buy. *The B.F. Goodrich Company, Industrial Products Division, Akron, Ohio.*

Koroseal—Trade Mark Reg. U. S. Pat. Off.

B.F. Goodrich
FIRST IN RUBBER



Bror Nordberg
Editor

Stanley A. Phillips
Publication Manager

Nathan C. Rockwood
Editorial Consultant

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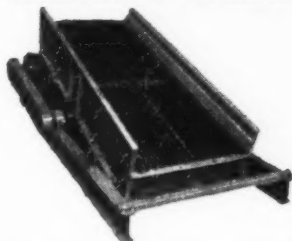
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LINK-BELT PREPARATION UNITS

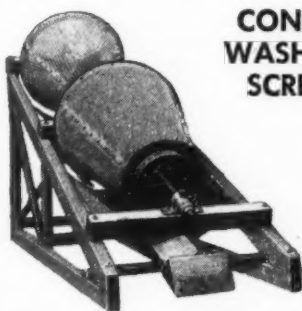
for higher efficiency—lower production costs

VIBRATING SCREENS

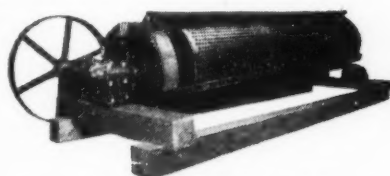


Link-Belt builds all types and sizes of vibrating screens for sand-gravel-stone and other non-metallics.

CONICAL WASHING SCREENS



For screening and scrubbing with low operating and maintenance cost.



REVOLVING SCREENS

Available in a wide range of sizes and capacities — plates with one or several sizes of perforations.



SCRUBBERS

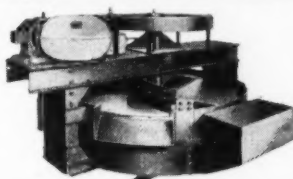
In combination with screens, Link-Belt scrubbers offer efficient and low-cost cleaning.



SHAW SAND CLASSIFIERS

For cleaning and classifying sand. Will also make such special grades as asphalt, filter, engine, gypsum and glass sand.

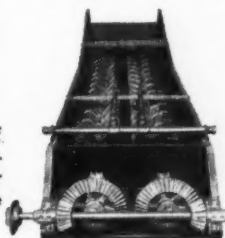
DEWATERING ROTOSCOOP



An efficient, compact, self-contained dewatering unit for all types of sand.

LOG AND SCREW WASHERS

A number of types of Link-Belt washers for gravel and stone are available.



DEWATERING CONVEYORS

Link-Belt Dewatering Screw Conveyor available in either single or double screw units. Link-Belt Dewatering Flight Conveyors are also available.



• The stringent specifications for sand, gravel, and stone require accurate separations. With the tremendous demand for construction materials, it is important that you have the most efficient and lowest-cost equipment.

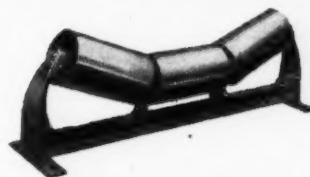
Let us talk over your problem, whether you are interested in a new plant or equipment for modernization of present layout.

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8.

Offices in Principal Cities. 10,568

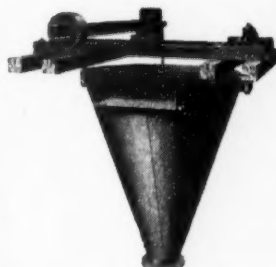
BELT CONVEYORS



Link-Belt belt conveyors have long been known for high performance and low-cost operation. We also manufacture all accessories such as trippers, belts, pulleys, bearings, take-ups, etc.

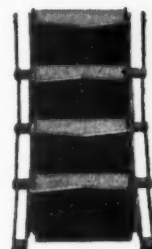
SAND SEPARATORS

Automatic conical sand separators for practical, low-cost, thoroughly reliable separation.



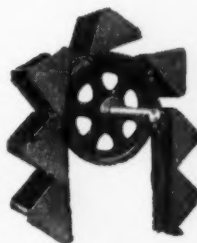
DIGGING ELEVATORS

A low-cost method of picking up sand and gravel from primary sump. Designed for long wear.



BUCKET ELEVATORS

Available in many types to suit various service requirements.



FEEDERS

Link-Belt feeders are made in the apron, belt, grizzly and reciprocating types.



LINK-BELT

SAND AND GRAVEL HANDLING AND PREPARATION EQUIPMENT



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ROCK PRODUCTS is published monthly by MACLEAN-HUNTER Publishing Corporation, 309 West Jackson Blvd., Chicago 6, Illinois; Horace T. Hunter, President; John R. Thompson, Vice President; J. L. Frazier, Secretary. Copyright, 1947. Entered as second-class matter, Jan. 30, 1936, at the Chicago, Ill. post office under the act of Mar. 3, 1879. Additional entry at Milwaukee, Wis.

SUBSCRIPTION INFORMATION

Subscription Price: United States and Possessions, Canada, one year, \$2.00; two years, \$3.00; three years, \$4.00. Pan American, one year, \$4.00; two years, \$7.00; three years, \$10.00. All other foreign, one year, \$6.00; two years, \$12.00; three years, \$15.00. Twenty-five cents for single copies. Indexed in the Industrial Arts Index. Canadian subscriptions and remittances may be sent in Canadian funds to ROCK PRODUCTS, P. O. Box 100, Terminal "A," Toronto, Canada.

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Editor

Stanley A. Phillips
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Nathan C. Rockwood
Editorial Consultant

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"WE HEAR..."

January 1, 1947

Action is being taken to protect motor vehicle revenues and gasoline tax receipts, assessments specifically made for use in highway construction, from diversion to other purposes. Nineteen States, Texas most recently, have taken action to insure that highway revenues will be available for the purpose of highway construction, which is becoming increasingly urgent month by month.

Urgency for highway construction in New Jersey has become critical, to the point that the New Jersey State Highway Department has recommended a 42 million dollar highway construction program for the 1947-1948 fiscal year. Furthermore, it has been estimated that 30 million dollars will have to be spent for each of five years to meet this little State's unique traffic problems. It's beginning to look as if highway construction is reaching the long-needed stage of large scale operation.

At least 20 per cent of the nation's home building contractors dropped out of the field or had intended to quit building up to the turn of the year, which gives some idea how unsavory all the red tape surrounding house construction had been. Recent events, fortunately, indicate an early return to the fold.

Newcomers in the concrete masonry industry are being counted on to contribute a substantial part toward meeting the heavy demand for building units that will come with the resumption of Spring construction. Every Company is urged to operate its plant throughout the Winter to build those stockpiles. All that is required is adequate curing of units to meet standard specifications and undercover protection in stockpile.

To stimulate the production of phosphate for fertilizer manufacture and to relieve the fertilizer shortage in the Pacific Northwest, the government has offered 200 acres of phosphate land in Silver Bow county, Montana, for lease.

The latest forecast of construction activity in 1947 that has come to our attention is one by the Department of Commerce, indicating intentions to build to the extent of 15 billion dollars. Distribution, according to this source, will be 40 per cent for residential building, 30 to 35 per cent private commercial and industrial building and 25 to 30 per cent for public works.

An employer cannot fail to give a reinstated veteran a higher rate of pay that the War Labor Board had ordered for his old job. It has been ruled in Federal court that failure constitutes infraction of the re-employment requirements of the Selective Service Act.

While hard to believe, lack of sufficient glass is the latest construction material shortage to plague home builders, at least in some localities. Insufficient supply of soda ash, coupled with the great increase in demand, has caused the shortage.

(Continued on page 78)

(Continued from page 69)

According to F. W. Dodge Corp., Construction Volume in the 37 States east of the Rocky Mountains will increase approximately 25 per cent over that of this year. A 35 per cent increase in number of dwelling units, a 7 per cent increase in nonresidential construction and a 22 per cent increase in public works are predicted during the coming year.

* * * * *

Sales of lime and/or cement bound paints for exterior use increased from \$158,581 in July, 1945, to \$404,767 in July 1946, according to the Bureau of Census. The increase exceeded that for paints of the cassein-type.

* * * * *

Dirt roads from farm to town are taking \$144 annually out of a farmer's pocket for each car and truck he operates, according to Charles M. Upham, engineer-director of the American Road Builder's Association. Actual expense accounts of rural letter carriers, taking into consideration gasoline, oil, tires and maintenance, and travel over various classes of roads, were analyzed in this excellent study, bearing out the self-liquidating features of adequate roads.

* * * * *

The New York State Thruway, a six-lane 486 mile Superhighway now under construction will cost 70 million dollars more than the 202 million dollar estimate, due to increased construction costs.

* * * * *

All HH preference ratings issued or to be issued to builders or contractors prior to establishment of a permit system are still valid and must be honored by suppliers.

* * * * *

Special fabric hose of the kind that has found wide application on lawns and in gardens may supersede the long practiced method of using straw saturated with water to wet down concrete during the curing period. B. F. Goodrich Co. reports that a large New England contractor is using "Oozer" hose for this purpose.

* * * * *

There are occasions when companies have been required to pay an unemployment tax for salesmen when the company had the right to control their activities even though salesmen's operations actually were not directed.

* * * * *

Personnel of United States industrial research laboratories increased over 90 per cent between 1940 and 1946 and now numbers over 133,000.

* * * * *

Nearly a billion dollars and vast quantities of fuel could be saved annually by applying known heat-conservation measures to existing dwellings, according to the Bureau of Mines which cites tests that have shown 30 to 45 per cent conservation in heat through insulation.

* * * * *

Kentucky veterans who want to learn highway engineering by training on the job have been invited to apply for jobs.

* * * * *

In a recent ruling, the Illinois State Supreme Court decreed that part time employes hired by the Concrete Materials Corp. of Chicago to address envelopes at home were covered by the unemployment compensation act.

The Editors



Editor's Page

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6667

Rehabilitation's Responsibilities In 1947

THIS YEAR will be a period of critical readjustment, in which labor must practice restraint in its demands for higher wages and industry generally must discipline itself to long range considerations in its pricing policies, so that real post-war prosperity may get started in 1948. There are signs that inflationary trends are breaking, but the scarcity of working labor, its woefully deficient performance and shortages of all kinds of equipment and supplies must be alleviated in 1947, or predictions for substantial recovery to begin in 1948 may be shoved back indefinitely.

Big Construction Soon Must Start

The rock products industry and the concrete products industry find themselves in a vulnerable position; most plants, for reasons beyond their control, still are far from prepared to supply demands for an all-out construction program that soon must break loose. Volume of necessary construction is staggering. Large-scale highway construction has been discouraged since the war, to help stabilize prices, but deferment of road construction cannot continue much longer.

A trend toward more conservative bidding by highway contractors is indicated in recent months by fewer rejections of bids, because excessive prices were quoted. And, unanticipated inflated costs and serious shortages since the end of the war, have added to the piling up of deferred maintenance and construction to the point of emergency. There is a growing need for more funds to insure accomplishing highway construction, classed as *urgent*, which just must be carried through despite building allocations, unless industry itself is to be seriously handicapped.

Industrial building contracts awarded in 1946 have averaged more than 90 per cent above 1929 levels, week by week, and the backlog of proposed industrial building is considered sufficient to support five years of industrial construction at current record-breaking volume.

Those facts, plus the more widely publicized data on residential building requirements, demand that plants prepare their operations for heavy production. Other complications to meeting the demands of the construction industry will develop.

The very plants that producers of building materials will help build are to become new competitors for labor, further emphasizing the great need for mechanization of plants that produce building materials.

Mechanization and the elimination of hitherto ignored wasteful operating practices, pointed to as the prime objective of rehabilitation programs in replies to our questionnaire to the industry

(summarized in this issue), will do more than increase the unit output of labor. It will enable the industry to employ and keep employed, well-paid, skilled and contented workers who are willing and able to turn out an honest day's work.

Goals in Efficiency

It is being currently demonstrated in the rock products industry and the concrete products industry, where plants have already been remodeled to achieve greater labor productivity, that a very considerable reduction can be attained in the fraction of unit cost exacted by labor.

Labor's fraction in total cost of a unit of product (aggregates in this case) has increased approximately 40 per cent the past six years, according to summaries from our questionnaires. But it is significant, we think, that plants mechanized and modernized since the war's end have been able to hold labor's fraction of unit cost to 1940 levels even at today's crazy wage scales. With that kind of cost reduction as an attainable goal there is little wonder that all the shortages, delays in securing equipment and high prices have not discouraged the progressive operator's plans to carry through plant rehabilitation programs.

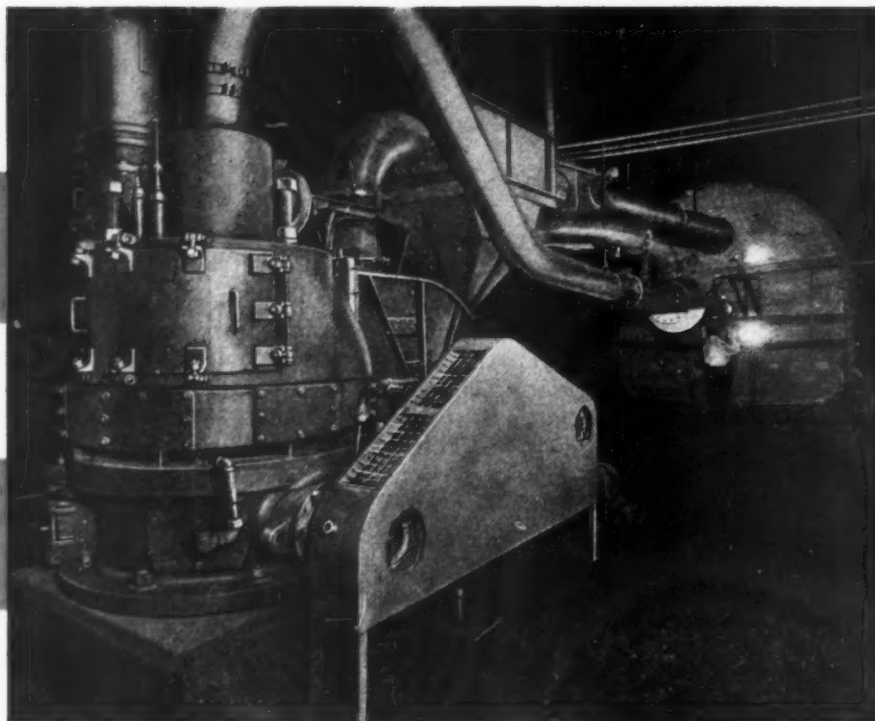
Evidently the industry overall has not been as efficient, production-wise, by a long way, as it might have been in years past. Otherwise, why could not plants have had a lower labor fraction in cost by 40 per cent back in 1940? Why could not that fraction have been 20 per cent instead of 30 or 35 per cent as reported in 1940?

Availability of funds and the natural hesitancy to make large capital investment without markets so assured as they seem today were considerations.

Unquestionably, labor's failure to produce at any wage, and its propensity to quit work at the drop of the hat have been more effective in demanding critical examination of plant operation and its costs than normal competition had ever been before.

While operations during the war and so far since have been extremely difficult, there will be one permanent good that came out of the experience that will stand the industry in good stead. Plant operators have had to become cost conscious and are acquiring a new concept of production efficiency, for competitive marketing in the future, that will be all out of comparison with previous standards.

Broer Nordberg



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Rocky's NOTES

Nathan C. Rockwood

Prospect for Improved Labor Relations

WE HAVE TAKEN ADVANTAGE of this Annual Review Issue to make a survey of ten years' developments in national labor problems with particular reference, of course, to their impact on these rock products industries. Except in a very few instances these industries are not part of "big business," and what has happened to them is therefore typical of what has happened to the great majority of American producers and manufacturers.

The record shows the great advantage of small units of organization in meeting problems that have cost big business many lost workdays and acrimonious struggles with their employees. Yet the problem of the small operator was just as difficult, if not more difficult, than in the case of big business, for these small operators previously seldom had to deal with organized labor, except in some few instances, and then only with their skilled workers. At first there was naturally some opposition to having their employees organized at all; and then, when that could no longer be prevented, there was some opposition to the entrance of outside unions which had no connection whatsoever with these kinds of operations.

Unions Not Permanent?

In numerous instances the small locals promoted by national union organizers did not stick; and presumably because they were too small and too scattered, no great effort could be made to keep them in line. This again demonstrates one great advantage of small industrial organizations where the boss is close to the men and the men are close to the business side of the organization. If they are intelligent, and the workers in country localities usually are, they are in a fairly good position to know whether or not they are "being exploited." By cultivating the confidence and goodwill of their employees, these employers probably will see in the post-war period the disintegration of more small locals of some of the national unions; but employers must in all instances be careful to prove that they are and will be fair without threat of labor union coercion.

While we believe that the method of enforcing the National Labor Relations Act went too far in compelling practically complete unionization of every kind of business and industry, we doubt if any fair-minded person can not see considerable justification for it. That it promoted strikes and controversies, which allegedly it was designed to prevent, was natural, for there were many employers who tried to resist collective bargaining by every means, fair and foul. The contentions of Phil Murray of the C.I.O. and old Bill Green of the A.F. of L., that all the provisions of the National Labor Relations Act are too sacred to be touched, is obviously absurd; but we do believe there are grounds for labor union leaders to doubt that those who fought so bitterly a decade ago are now all converted to a liberal attitude.

Revision of Labor Laws by Next Congress

It seems practically certain that the N.L.R.A. and National Fair Labor Standards Act will be amended or revised by the incoming Congress, not because of its Republican majority, but because a majority of all citizens in these United States have come to demand changes. After all, the members of labor unions, with their families, can account for no more than about 40 million of our 140 million citizens; and even a majority of labor union members, according to recent public opinion polls, are fed up with the excesses of their so-called leaders—men drunk with a power that they have abused.

For one, we believe this has been all to the good, because nearly always it takes drastic measures to impress most of us, and to arouse us to action. At all events it is the speediest way to get results, and it may be that shrewd politicians had this in mind when they voted for the Acts. Were Messrs. Murray and Green really capable leaders and actually labor statesmen, instead of vainly proclaiming that any revision of the Acts is disaster to labor unions, they would frankly be acknowledging the law's

shortcomings and be out in front with constructive suggestions for strengthening the position of the unions in our national economy.

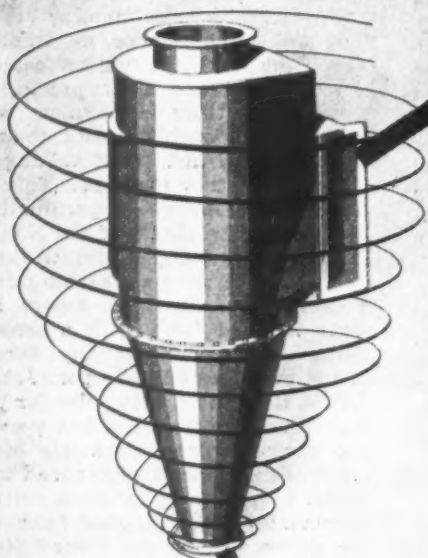
Of course, what they really do fear is the possibility that the law will be amended to prevent a compulsory closed shop, or what the New Dealers preferred to call "maintenance of membership." Whether or not any man or group of men should have the authority to determine another man's right to have or to hold a job is certainly a very serious matter. It could only be decided justly by the individual involved. If he actually knowingly and willingly gives that authority to a labor union, that is his privilege, and as such it should be respected. However, there should be honest methods provided so that he and he alone can make the decision. Once having made it, it seems to us only fair that he should be held to it for the life of his agreement or that of his union.

No liberal-minded man, be he a labor union member or an employer, can deny that the unions could be strengthened and their prestige enhanced if their spokesmen would frankly and openly accept their responsibilities, instead of talking and acting as if they had none. This lack in defining labor's responsibility is the primary weakness of the N.L.R.A. Yet every intelligent person knows there can be no genuine bargaining, collective or otherwise, unless it is done in good faith with a sense of responsibility for carrying through the stipulations agreed upon. John L. Lewis, if he did nothing else for post-war American industry, has provided the necessary stark example of the irresponsibility of a power-mad union leader toward carrying out a contract, presumably made in good faith with the government of the United States.

Whatever else the new Congress may or may not do, it must not fail us in changing the laws to make union leaders as well as unions responsible for the contracts they make with industry. When that is done, it will behoove employers as well as employees to pay closer attention to drafting the contract provisions. In too many instances employers have come to the conference table with a feeling that they were already defeated; and their energies have come to be concentrated on combatting exorbitant demands of labor's representatives. There is too often an attitude of "Oh, what's the use."

Naturally, under such conditions it is difficult to bargain in good faith; and the union employees of industry have suffered quite as much as their employers, only it hasn't been so obvious to them. They have suffered by allowing their leaders to overreach themselves and bring down the wrath of the nation upon their heads. We hope cool heads in Congress and in industry will not overlook some of the genuine merits in the New Deal labor legislation, in their enthusiasm to correct its defects.

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Association NEWS

WASHINGTON's alphabet "soup" is rapidly becoming clearer with the continued dropping of controls. The Office of Temporary Controls or OTC is the name of the new liquidating agency taking over the remaining affairs of CPA and OPA. Clay and concrete brick and concrete block have been removed from inventory controls, but asbestos cement shingles and a few other items have continued under a limited control. Housing restrictions have been largely eliminated. While some effort will be made to channel materials into housing for veterans anyone may now build a home within a \$15,000 cost and a 1500 sq. ft. floor area limitation. It is more a question of getting materials.

As the emphasis is largely passing from control by temporary agencies to Congress and delegation of authority to permanent governmental bodies, the title of this page has been changed back to "Association News" and the contents will be directed to association activities.

While the coal strike has ended in a truce to March 15, when the contract with the union will be reopened, its effects will be felt for months to come. There will be a continued shortage of cement for some time. In some cases cement companies will convert to other types of fuel. One Kansas cement company, long a user of natural gas, is converting its plant for the burning of fuel oil as the gas company has served notice it will be unable to supply gas during the winter months. This is all part of the chain reaction to the coal strike.

Freight Rate Increases

The National Sand & Gravel Association, the National Crushed Stone Association, and the National Slag Association submitted a joint brief in the Ex Parte 162 freight rate increase hearings before the I.C.C. As generally anticipated, the Commission granted increases all along the line. There is an increase of 15¢ a ton on gravel and sand; stone, broken, ground, or crushed; fluxing stone; furnace slag; and agricultural or ground limestone (in open top cars). These permitted increases take the place of the 20¢ increase proposed by the carriers on sand and gravel, crushed stone and certain other commodities and 30¢ per ton proposed on fluxing stone. Raw dolomite is subject to a maximum increase of 30¢ per ton when in closed equipment, but when in open cars is

subject to the same increase as fluxing stone. Ground or pulverized limestone in closed equipment is subject to a maximum increase of 30¢ per ton. It is the opinion of Mr. Collin, counsel in the case, that this means that raw dolomite when in closed equipment and agricultural limestone in closed equipment, is permitted to be increased by 20 per cent, but is not to exceed 30¢ per ton.

The other commodities are subject to a maximum increase of 30¢ per ton, when in closed equipment, but when in open equipment, carry the same increase as fluxing stone, are as follows: bituminous asphalt rock, asphaltic limestone, asphaltic coated rock, crude gypsums and gypsum rock, perlite rock, and phosphatic sand and clay.

Industrial sand is subject to a maximum increase of 30¢ per ton, but not to exceed a 20 per cent increase. For cement, an increase of 20 per cent is allowed, subject to a maximum of 6¢ per 100 lb., or \$1.20 per net ton.

These increases are permissive and not mandatory. As authorized, they supersede and are in lieu of the emergency increase authorized in the Commission's report and order of June 20, 1946. The authorized increased rates and charges may be made effective in the period January 1, 1947 to February 28, 1947, upon not less than five days' notice to the Commission and to the general public, by filing and posting in the manner prescribed in the I.C.C. order.

Attends Brussels Meeting

Executive Secretary V. P. Ahearn of the National Sand and Gravel Association was recently honored by President Truman who appointed him as one of two delegates representing employers at the meeting of the Industrial Committee on Building, Civil Engineering and Public Works of the International Labor Organization, held in Brussels, Belgium, November 25 to December 3. He flew to Belgium by air, but returned by boat to New York on December 12.

Agreeing that construction was the collective task of all countries, the committee recommended that Governments, management and labor, with the assistance of the ILO, should undertake the solution of five types of problems, which were listed as follows: (1) programs of work; (2) production; (3) reconstruction; (4) recruiting and training of manpower; and (5) the stabilization of employ-

ment. The Committee urged adoption of the principle that workers should be paid for a minimum number of hours weekly even if they lost time as a result of bad weather. It also recommended that the question of the 40-hr. week for industry be placed on the agenda of the committee's next session. In another resolution, the Committee urged that there be no work stoppages in view of the acute need for construction of all kinds.

Urge Early Los Angeles Reservations

Plans are rapidly taking shape for the annual conventions of the National Sand and Gravel Association and National Ready Mixed Concrete Association to be held in Los Angeles the week of March 3, 1947. A feature of unusual interest will be an inspection of sand and gravel plants in the Los Angeles area on the afternoon of March 4, and an inspection of ready mixed concrete plants on the afternoon of March 7. Those planning to attend the convention are urged to submit application for hotel accommodations immediately. While the Committee on Convention Arrangements, of which Robert Mitchell is chairman, cannot guarantee accommodations for everyone at The Biltmore, convention headquarters, assurances have been given that rooms will be allocated at nearby hotels for all who send in their reservations early.

Lime Operating Meetings

Directors of the National Lime Association have decided to hold the next Operating Meeting immediately following the annual convention scheduled for The Homestead, Hot Springs, Va., on May 5 and 6. The Operating Meeting therefore will be on May 7 and 8. There will be no registration fee at future Operating Meetings. It was decided to rotate the Operating Division chairmanship each year. Bolton L. Corson was elected Operating Division chairman for the coming year, succeeding Russell Rarey. Two meetings will be held each year.

N.C. Block Association

THE NORTH CAROLINA CONCRETE MASONRY ASSOCIATION, Raleigh, N. C., has increased its membership to 33 plants. G. W. Hutchinson is executive secretary of the association which has been organized to improve the quality of the product and promote its use.

Engineered Hydroseal Pumping Systems NOT JUST "PUMPS FOR SALE"

Standard Silica Corp. of Ottawa, Ill., know the value of "Engineered Hydroseal Pumping Systems" by the results they have obtained since 1944, with four C-Frame and one B-Frame Hydroseal Pump. For over two years, they have pumped 900 tons of hard, sharp, silica sand per day, 300 days per year, or 270,000 tons per annum through 1890 feet of 6 inch pipe. There is a static discharge head of 114 feet,

which includes two vertical lifts, the total dynamic head being 340 feet. . . . In 1944 their maintenance cost for the three C-Frame Hydrosesals in the pit was \$0.0065 per ton of sand handled. In 1945, maintenance costs were higher, due to wartime rubber restrictions, but this year (1946) Maxima Rubber is again at pre-war quality. Maintenance costs on the B-Frame Hydroseal, which elevates sand to the wash-

drain bins, and the other C-Frame pump, in the pit, have been negligible since the very beginning. . . . If you have an unusual or difficult materials pumping problem, call on the Hydroseal Engineer. He can do more than "sell pumps," if you need more. Catalog on request.

One Hydroseal Pump
at Washer, out of
picture at right

Three C-Frame Hydroseal Pumps
in series, pumping to washer,
which is out of picture

One Hydroseal—C-Frame

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the *Personal Side* of the news

Retires

GUY S. LAFORGE, superintendent of the Union Bridge, Md., plant of the Lehigh Portland Cement Co., Allentown, Penn., since 1918, when the plant was owned by the Tidewater



Guy S. LaForge

Portland Cement Co., has retired after a long career in the cement industry. Mr. LaForge served as chemist for several cement plants in various sections of the United States and in Ontario, Canada. He had charge of inspection of cement and concrete for the Pearson Engineering Co. during construction of the Medina Valley Dam at San Antonio, Texas, and the Tremp Dam at Barcelona, Spain. Returning to the United States, he was employed as chief chemist at the Union Bridge plant from which position he was promoted to superintendent.

RAYMOND WILSON, who has been control engineer in the operating department at Allentown, will succeed Mr. LaForge as superintendent at Union Bridge. Mr. Wilson joined the company in 1937 as field engineer, succeeding W. M. Harbaugh who had been promoted to chief engineer. He is a graduate of the University of Chicago and was a pilot in the Army Air Forces during World War I. On returning to civilian life, he joined the structural materials research laboratory of the Lewis Institute in Chicago, now the research laboratory of the Portland Cement Association.

W. GEORGE SKINNER, who has had a long career at the Union Bridge plant, Lehigh Portland Cement Co., has been promoted to the position of assistant superintendent and supervising chemist. He started with the plant in 1913, when it was owned by the Tidewater Portland Cement Co. In 1917, he left to become chemist and assistant superintendent of the Old Dominion

Chemical Co. but returned to Tidewater the following year as chemist. In 1922 he was promoted to the position of chief chemist and continued in this position after the plant was purchased by Lehigh in 1926. Mr. Skinner, noted for his safety work at the Union Bridge plant, is also chairman of the monthly plant-wide safety meetings. Prior to his employment with Tidewater, he had served in the laboratories of the Virginia Portland Cement Co., American Cement Engineering Co., Giant Portland Cement Co. and U. S. Metals Refining Co.

Warner Promotions

H. J. WHITTEN, general plants manager, Warner Co., Philadelphia, Penn., has been elected vice-president in general charge of all lime and stone operations of both the Bellefonte and Cedar Hollow plants. John Curtin,



John Curtin, Jr.

Jr., has been elected executive vice-president, assuming general administrative direction of the business under supervision of the president, Charles Warner. Mr. Whitten recently relinquished supervision of sand and gravel operations at Van Sciver-Terminal plants and of the Berks Street shops. F. K. Wills, general superintendent at Van Sciver, and Peter Stank, master mechanic at Berks Street, will report directly to Alexander Foster, Jr., vice-president.

Heads Marquette Office

HARRY C. SHIELDS has been appointed sales manager of the new office recently opened in the Shell Building, St. Louis, Mo., by the Marquette Cement Manufacturing Co., Chicago, Ill., to serve Missouri, southern Illinois and southern Indiana. KENNETH F. HACKMAN has been appointed his assistant.

Represents Employers

V. P. AHEARN, executive secretary of the National Ready Mixed Concrete Association and the National Sand and Gravel Association, Washington, D. C., was one of two delegates appointed by the President of the United States, to represent employers of the United States at the Building, Civil Engineering and Public Works conference of the International Labor Organization, which was held in Brussels, Belgium, November 25 to December 3.

Association Officer

ARTHUR ALVIS of Butler, Mo., has been elected secretary-treasurer of the Missouri Lime Producers Association.

Elected Vice-President

DONALD E. KOCH has been elected vice-president in charge of production of the Giant Portland Cement Co., Philadelphia, Penn. He was formerly superintendent of the Reliance mill at Egypt, Penn. Mr. Koch has been identified with the manufacture of cement since September, 1923, when he started in the laboratory of the York, Penn., plant of the Medusa Portland Cement Co. In 1929 he became assistant chief chemist at the newly acquired plant at Wampum, Penn. (formerly Crescent Portland Cement Co.) where he remained until 1932 when he was appointed assistant chief chemist at the Painesville, Ohio, plant of the Standard Portland Cement Co. He held this position until he was appointed chief chemist at the Egypt, Penn., plant of the Giant Portland Cement Co. in 1937. Five years later he was made assistant superintendent, and in 1942, upon the resignation of O. D. Havard, general



Donald E. Koch

superintendent, he took over the duties of acting superintendent, and in 1943 assumed the duties of superintendent of the Reliance Mill, which position he has held until his election to the position of vice-president in charge of production.

Promoted

FORREST LADD, HENRY POMMER, JOE GEE AND STANLEY WHITE have been appointed assistant vice-presidents of John A. Denie's Sons Co., Memphis, Tenn. The appointments were announced at the annual banquet celebrating the 87th anniversary of the company, at which time M. A. Moss, president, also announced plans for the production in 1947 of concrete block and brick, common and face brick, and ready mixed concrete. Other officers of the company are M. M. Garner, vice-president; Byron Bartholomew, secretary-treasurer; J. A. Fleetwood and R. G. Clark, members of the board.

Office Manager

JOHN L. LOLL has been appointed office manager at the Morrisville, Penn., plant of Warner Co., Philadelphia, Penn., to relieve R. H. Brigham, superintendent, of many of the details connected with office routine. Mr. Loll is a veteran of four years' service with the Army in India and the Mariana Islands.

Returned Veteran

ROBERT WOLFE, superintendent of the Woodleaf, N. C., crushed stone plant of the Southern Aggregates Corporation, is another of the many servicemen that have returned to the industry. Mr. Wolfe assumed his present position in April, 1946, after spending three years as a technical sergeant in the Engineer Corps, serving in the China Burma India Theater. Prior to his service in the Army, Mr. Wolfe was employed by the South Carolina Granite Co. at Blair, S. C.



Robert Wolfe

Committee Member

L. B. OSBORN of Hougland and Hardy, Inc., Evansville, Ind., industrial sand producers, is a member of the mold surface committee of the sand division, American Foundrymen's Association, Chicago, Ill. J. B. Caine, Cincinnati, Ohio, is chairman of the committee and the following are also members of the committee: J. A. Rassenfoss, East Chicago, Ind.; Harry W. Dietert, Detroit, Mich.; Francis S. Brewster, Bay City, Mich.; K. J. Jacobson, Chicago, Ill.; H. M. Kraner, Bethlehem, Penn.; and E. C. Troy, Philadelphia, Penn.

Plant Manager

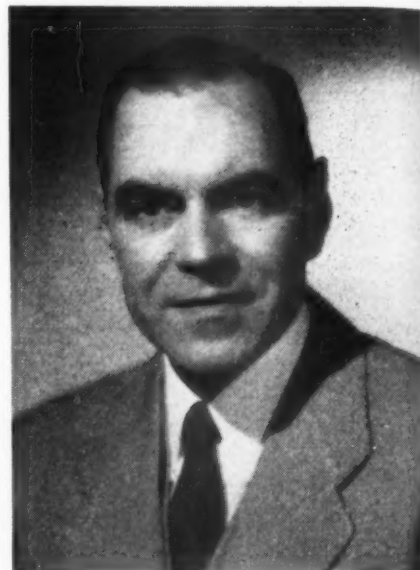
RICHARD D. MAYNE, assistant plant manager at the Hannibal, Mo., plant of Universal Atlas Cement Co., New York, N. Y., has been appointed plant



Ray E. Hoffman

manager to succeed RAY E. HOFFMAN who has retired after 40 years of service at this plant. Mr. Hoffman started with the company in 1906 as mining engineer at Hannibal and advanced successively to mine and quarry engineer, assistant plant manager and then plant manager. Mr. Mayne joined the company in 1937 and served as industrial engineer, Chicago; superintendent of the gypsum operation at Clarence Center, N. Y.; quarry and mine superintendent at Hannibal, and assistant to general operating manager, New York. In 1943 he was appointed assistant plant manager at Hannibal, succeeding Paul Kirkbride who became manager of the plant at Independence, Kan. Mr. Mayne is a member of the American Institute of Mining and Metallurgical Engineers.

MAC H. HULL, assistant to vice-president, Central Region, Chicago, Ill., has been appointed assistant to



Richard D. Mayne

vice-president, general sales, New York, N. Y.

HAROLD J. BERGLAND, district sales manager, Chicago, Ill., will succeed Mr. Hull as assistant to vice-president Central Region, Chicago.

Co-Authors

T. C. POWERS, manager of basic research, Portland Cement Association, Chicago, Ill., and T. L. BROWNYARD, civilian scientist in the Navy Department, Washington, D. C., are co-authors of a paper on "Studies of the Physical Properties of Hardened Portland Cement Paste" currently appearing in the Journal of the American Concrete Institute.

Mr. Powers has been a member of the P.C.A. research staff since 1930. He organized the division of basic research in 1940 and was in charge as assistant to the director of research until November, 1944, when he was made manager of basic research. Twice he was awarded the Wason Research Medalist.

Mr. Brownyard came to the Portland Cement Association in July, 1937, as research chemist and remained until January, 1943. The next three years were spent as an air navigator in the U. S. Navy. He returned to the P.C.A. in December, 1945, but in June, 1946, he returned to the Navy Department as a civilian scientist. Mr. Brownyard was awarded the Francis P. Garvin Fellowship at Johns Hopkins University where he received his Ph.D. degree in 1934.

Joins Concrete Firm

JAMES G. LUND has resigned as engineer of Traill county at Hillsboron, N. D., to become associated with the Concrete Sectional Culvert Co., Fargo, N. D. He previously served as resident engineer with the State Highway Department, Grand Forks, and later as Dickey county engineer.

P.C.A. Promotions

F. R. McMILLAN, director of research for the Portland Cement Association, Chicago, Ill., since 1927, has been promoted to assistant to the vice-president for research and development. H. F. GONNERMAN, manager of the research laboratory in Chicago for the past 19 years, has been appointed director of research, and WILLIAM LERCH, senior research chemist in the Chicago laboratory since 1940, has been named manager of the department of applied research.

Mr. McMillan joined the P.C.A. staff in 1924 as associate engineer. He was manager of the structural bureau from 1925 to 1927, when he became director of research. Mr. McMillan is a civil engineering graduate of the University of Minnesota where he was later an assistant professor of engineering. During World War I he was drafted by the U. S. Shipping Board as a research engineer on the construction of concrete ships.

Mr. Gonnerman became associated with the research staff in 1922 as associate engineer, and was made manager of the research laboratory in 1927. He holds B.S. and M.S. degrees from the University of Illinois where he later taught theoretical and applied mechanics. He is the author and co-author of many papers and reports relating to concrete.

Mr. Lerch, who has been a member of the staff since 1923, holds a B.S. degree in chemistry from Beloit College and a Master's degree in chemistry from the University of Wisconsin. He was a member of the Association's Fellowship staff in the National Bureau of Standards in Washington, D. C., from 1924 to 1940.

Marquette Appointment

WILLIAM E. ERWIN, who recently joined Marquette Cement Manufacturing Co., Chicago, Ill., as assistant manager of industrial relations, has been appointed manager of industrial relations to succeed John J. Kelly who passed away December 7 while on a business trip to LaSalle, Ill. Mr. Erwin was formerly director of labor relations for North American Aviation, Inc., Kansas City, Kans.

Assists Plant Manager

ARTHUR P. LOTHROP has been appointed assistant plant manager of the Leeds, Ala., plant of Universal Atlas Cement Co., New York, N. Y. He was formerly plant engineer. Mr. Lothrop joined the operating department of the company in 1942 as industrial engineer and was transferred to the Leeds plant as plant engineer in 1944.

Heads Rock Wool Firm

MURRAY ESTES of Moscow, Idaho, has been named chairman of the board and HARRY E. CARNEY, JR., Mankato,

Minn., president of the new Carney Pacific Rockwool Co., Inc., which will begin construction immediately of a plant at Longview, Wash. The new company is an affiliate of the 63-year-old Carney Co., Inc., Mankato, of

which Mr. Carney is also president. Other officers are W. B. Lee, executive vice-president; Carl Heim, vice-president in charge of western operations; C. K. Bowe, treasurer, and Mary Gaffey, secretary.

HERBERT E. SWANSON

All of Herbert E. Swanson's friends and fellow workers on the staff of ROCK PRODUCTS and affiliated publications were shocked to learn of his untimely death, De-



Herbert E. Swanson

cember 7, in the Winecoff Hotel fire at Atlanta, Ga. Herb lost his life while travelling in the interests of ROCK PRODUCTS, on an editorial mission through the States of Georgia and South Carolina. He had left Chicago just a week before the disaster, contemplating his return to spend the Christmas holidays with his family.

Herb came to ROCK PRODUCTS July 1, 1944, as associate editor, and had shown great promise as an editor. A loyal, conscientious and enthusiastic worker, his greatest single attribute, and a most admirable and valuable asset, was his extraordinary ability to make

friends. It came by him naturally; he sincerely enjoyed meeting people, and his many friends throughout the rock products industry very obviously felt the same way toward Herb as did his associates in the office. Everyone took a warm liking to him.

A native of Chicago, Herb was born March 5, 1908. He attended the Chicago public schools and was a graduate of Senn High School and Northwestern University School of Engineering with the degree of Bachelor of Science. Practically all his work experience before undertaking technical writing was in the State of Illinois, Division of Highways, where he held various engineering positions from 1931 through 1944, which constituted excellent background and made him a valuable member of the staff of ROCK PRODUCTS. Herb was a licensed professional engineer and a member of the Illinois Association of Highway Engineers.

Herb followed his mother in death by three months and is survived by his father, Edward, and his sister, Mrs. J. H. Stall. He made his home with his father at 1507 Highland Ave., Chicago. Burial was at Rosehill Cemetery, in Chicago, December 11.

ROCK PRODUCTS expresses its sincere thanks to G. A. Austin (president, Consolidated Quarries Corp.) and other friends in Atlanta for their untiring efforts in Herb's behalf during the emergency. Through Mr. Austin's voluntary effort, we were able to keep the family immediately informed as to developments that fateful day. Herb's family depended heavily on Mr. Austin's help and deeply appreciates his handling of all the necessary details and arrangements.

RICHARD A. DITTMAR, chief engineer of the Universal Atlas Cement Co., New York, N. Y., died suddenly at his home in Brooklyn on December 28. Mr. Dittmar joined the Hannibal, Mo., plant in 1913 and served successively as power superintendent, power and maintenance superintendent and assistant plant manager. In 1924 he was appointed manager of the Hudson, N. Y., plant where his service was marked by engineering accomplishments in connection with the recon-

struction of the plant and also with the personnel and safety programs there. When he was appointed chief engineer he moved to New York and assumed charge of the company's modernizing program including completion of the engineering work for the new plant at Northampton, Penn., and the rehabilitation of the plant at Osborn, Ohio. Mr. Dittmar was a former chairman of the Cement and Quarry Section of the National Safety Council.

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INDUSTRY *News*

Marquette Celebrates Safety Achievement

OFFICIALS of the Marquette Cement Manufacturing Co., and prominent guests made a trek to the Cape Girardeau, Mo., plant for the celebration on December 18, in honor of the plant employees who on December 12 hit the record of more than 3,600,000 consecutive man-hours of accident-free operations. According to G. G. Grieve, of the Cement and Quarry section, National Safety Council, reported that this mark has never before been attained by any other group in the cement industry. An elaborate party for the employees at the Civic Arena in Cape Girardeau included a buffet dinner, dancing and entertainment by eight professional acts sent from Chicago.

Following dinner a brief address of welcome was made by the plant safety engineer, Anderson Hayden, who then introduced L. G. Dubeck, assistant manager of safety activities for the Portland Cement Association, and J. H. Howe, superintendent of the Cape Girardeau plant. Mr. Howe accepted a special certificate award from Mr. Dubeck. President W. A. Wecker, in his brief address, paid individual tribute to many of those participating in the achievement.

In addition to Mr. Wecker, other Marquette officials present included: D. S. Colburn, vice-president, Richard Moyle, Sr., vice-president in charge of operations; V. J. Hanley, secretary-treasurer; L. W. Saxby, assistant to the president; S. L. Cribari, assistant to the president; Frank Moyle, director of operations; J. C. Witt, technical director; A. F. Miller, chief engineer;

V. A. Kogge, manager marine division; George L. Kirp, operations engineer; William E. Erwin, manager industrial relations; Ralph Moyle, superintendent of the company's Oglesby, Ill., plant; and Jack K. White, director of public relations for the company.

Rebuild Stone Plant

LORING QUARRIES, Bonner Springs, Kans., has started to completely overhaul its crushing plant and modernize the quarry. A new crusher will be added and two secondary crushers will be installed, one of which will be devoted exclusively to the production of agricultural limestone. The new plant will be operated by electric power throughout. Six new bins also will be constructed. Total expenditures will be about \$100,000. Officers of the company include: J. R. Calgren, president and secretary, and Guy Stanley, Jr. Emmett Conlan is superintendent. Mr. Stanley is also identified with a new company building a ready mixed concrete plant in Kansas City, Kans.

From Gas to Oil Fuel

LONE STAR CEMENT CORPORATION, Bonner Springs, Kans., plant is being converted from natural gas to fuel oil burning in its kilns. For many years the plant has used natural gas and during the winter months it has been necessary to shut off gas so that residential consumers could have an added supply. The gas company notified the cement company that it would have to disconnect its line on December 1, 1946. It therefore has been decided to install tanks and lines for the burning of fuel oil.

U.S.G. Expansion

THE UNITED STATES GYPSUM CO., Chicago, Ill., has announced additional plant facilities which will be financed by the sale of \$23,968,620 in stock at the rate of one share to three shares held by stockholders. The offering price will be \$60 a share. In addition to the Sigurd, Utah, gypsum plant, announced in the December, 1946, issue of ROCK PRODUCTS, the company plans a new insulation and hardboard plant at Alta Vista, Va., a new gypsum mill at Norfolk, Va., a new gypsum plant in Imperial Valley, California, and a paper mill in Los Angeles, Calif. Approximately \$42,000,000 will be required to complete the expansion program.

Missouri Improvements

THE MISSOURI PORTLAND CEMENT CO., St. Louis, Mo., which has just completed its first phase of a post-war modernization program, now will direct its attention to modernizing the cement plants at St. Louis and Kansas City. Cement storage silos and shipping facilities have been completed at Memphis, Tenn., and river docks at Memphis and St. Louis.

New Colorado Plants

HERBERTSON'S SAND & GRAVEL CO., has built a new sand and gravel plant on West Hampden street in Sheridan, Colo. This plant is operated by Robert J., Ernest and Fred Herbertson.

CRAWFORD'S, INC., is the name of a new ready mixed concrete concern in Sheridan, Colo., which is operated by L. E. Crawford.

Montana Phosphate

THE FEDERAL GOVERNMENT has opened for development 200 acres of phosphate deposits in Silver Bow County, Montana. According to Department of Interior Secretary J. A. Krug, the lease contains at least a 10-ft. seam of phosphate rock.

Open Gravel Plant

FLOYD PAPPIN & SON, general contractors of Great Falls, Mont., expanded operations to include a sand and gravel plant located at Vaughn, Mont.

Delivering Ready Mix

THE CARTHAGE READY MIXED CONCRETE CO., Carthage, Mo., has started delivery of ready mixed concrete. Walter Largent heads the company.



Among officials of Marquette Cement Manufacturing Co. attending the company's safety celebration were (left to right): V. A. Kogge, manager, marine division; Anderson Hayden, safety engineer, Cape Girardeau plant; R. Moyle, Sr., vice-president in charge of operations; W. A. Wecker, president of Marquette (shaking hands with Hayden); V. J. Hanley, secretary-treasurer; J. H. Howe, plant superintendent

Stone Convention Program

SOME of the high spots of the convention program for the National Crushed Stone Association's annual convention at the Edgewater Beach Hotel, January 21-29, have been released by J. R. Boyd, administrative director.

On Monday, January 27, in addition to the customary reports, J. W. Folin, Assistant Administrator, Federal Works Agency, Washington, D. C., will address the convention on "The Construction Outlook." At the Greeting Luncheon, Walter Chamblin, Jr., vice-president, National Association of Manufacturers, will give a talk on "The Washington Scene." In the afternoon, the subject, "Some Basic Principles Concerning Asphaltic Concrete" will be presented by Bernard E. Gray, general manager, New York, and Geo. H. Dent, district engineer, Asphalt Institute, Washington, D. C. The same afternoon Whiting Williams, consultant and adviser on industrial relations, Cleveland, Ohio, will talk on "Getting Worker Cooperation Today."

The Tuesday morning session will open with a talk by Arthur Boase, Chief, Structural Bureau, Portland Cement Association, on the subject, "Concrete for Housing and Building Construction." A. T. Goldbeck, engineering director of the association, will follow with a talk on "Studies of Stone vs. Gravel in Traffic Bound Roads."

Taking the place of the former breakfast will be a luncheon meeting of the Manufacturers' Division on Tuesday. Tuesday afternoon Theodore F. Hatch of the Industrial Hygiene Foundation of America, Pittsburgh, will address the meeting on the subject, "Dust Control in Industry." J. Spencer Smith, president of the American Shore and Beach Preservation Association, New York City, will follow with a talk on "Expanding Opportunities for use of Stone in Shore Line Protection."

All day Wednesday will be devoted to sessions by Operating Men and Equipment Manufacturers, with a round-table discussion taking place in the morning. There will be a General Luncheon with George Romney of the Automobile Manufacturers' Association, Detroit, talking on the subject, "Management - Union Cooperation - Some of the Major Obstacles." The afternoon will be addressed by Dr. L. Don Leet on the subject, "Vibration Tests of Delayed Action Blasting." L. F. Miller of the New York Trap Rock Corporation will follow Dr. Leet with a talk on "Delayed Action Shooting."

At the annual banquet, A. J. R. Curtis, assistant to general manager, Portland Cement Association, Chicago, will present the safety awards.

The banquet address will be given by Col. Jack Major, Paducah, Ky.

Agricultural Limestone Division

Immediately following the National Crushed Stone Association convention, the Agricultural Limestone Division will hold its second annual convention, at the same hotel, January 30 and 31.

The convention will open at noon on Thursday, January 30, with a Greeting Luncheon. Wayne Darrow, publisher of the famous Washington News letter, will be the luncheon speaker who will talk on "Back of the Farm Scenes in Washington."

Following the luncheon, the managing director and the secretary of the Division will make their reports on activities during 1946, and present plans for the future. This will be followed by a talk on the 1947 Agricultural Conservation Program by Grant Thompson, assistant director, Field Service Branch of the Production and Marketing Administration, United States Department of Agriculture.

On Friday morning, Dr. Kenneth C. Beeson, of the United States Plant, Soil and Nutrition Laboratory will have for his subject, "Effect of Supply and Availability of Plant Food Nutrients on the Quality of Food and Feed Crops." Prof. B. J. Firkins of the Iowa State College of Agriculture will discuss, "Factors Governing the Efficient Use of Limestone." Grover Brown, Chief of the Agronomy Section, Soil Conservation Service will be the third speaker of the morning with an illustrated talk entitled, "Proper Use and Care of the Land." Following the luncheon on Friday, there will be an address entitled, "Food or Atomic Bombs—It's Up to Us," by Dr. Geo. Searseth, Director of Research of the American Farm Research Association. Two entertaining and educational films also will be shown. This will be followed by the annual business meeting of the Division at which time officers and directors will be elected and other business transacted.

Review Gypsum Suit

THE U. S. SUPREME COURT has agreed to review the government's anti-trust suit against U. S. Gypsum Co., and six other gypsum companies and their officials. The government appealed the case after a special three-judge district court dismissed the suit last August.

Carney Spends \$250,000

CARNEY COMPANY, INC., Mankato, Minn., manufacturers of masonry cement and rock wool, will spend \$250,000 on its cement mill, including modernization of its quarry and crushing plant. These improvements will enable the company to double its cement

producing capacity to 2000 bbl. per day or approximately 700,000 bbl. annually.

Another venture of this company is the construction of a new rock wool plant at Longview, Wash., near the Longview Concrete Pipe Co.

COMING CONVENTIONS

American Institute of Mining and Metallurgical Engineers, Annual Meeting, Hotel Pennsylvania, New York, N. Y., February 16-20, 1947; 75th Anniversary Celebration, Waldorf - Astoria Hotel, New York, March 17-22, 1947.

American Concrete Pipe Association, Meeting and Convention, Statler Hotel, St. Louis, Mo., February 24-26, 1947.

American Road Builders' Association, Annual Convention, Palmer House, Chicago, Ill., February 17-20, 1947.

National Association of Home Builders, Convention and Exhibition, Stevens Hotel, Chicago, Ill., February 23-27, 1947.

National Concrete Masonry Association, Convention and Exposition, Hotel Sherman, Chicago, Ill., week of February 17, 1947.

National Crushed Stone Association, Annual Convention, Edgewater Beach Hotel, Chicago, Ill., January 27-29, 1947; Agricultural Limestone Division, January 30-31, 1947.

National Ready Mixed Concrete Association, Annual Meeting, Biltmore Hotel, Los Angeles, Calif., March 5-7, 1947.

National Sand and Gravel Association, Annual Convention, Biltmore Hotel, Los Angeles, Calif., March 3-5, 1947.

Sand-Lime Brick Association, Annual Convention, Hotel Sherman, Chicago, Ill., February 17-18, 1947.

Wisconsin Concrete Products Association, 26th Annual Convention, Hotel Loraine, Madison, Wis., January 27-28, 1947.

Canadian Gypsum Improvements

GYPSUM, LIME & ALABASTINE, CANADA, LTD., Toronto, Canada, is taking bids for \$400,000 in improvements at its Montreal plant. Present 15,000-ton storage capacity will be doubled with the construction of a new building. The old storage building will be razed when the new building is completed to make room for further plant expansion. An additional gypsum calcining kettle and a dryer also will be installed.

Sell Ready Mix Plant

KEEFNER CONCRETE AND LUMBER Co., Des Moines, Iowa, has been sold to J. C. White, head of the White Construction Co., of Des Moines. This plant was described in ROCK PRODUCTS, September, 1946, issue. The new owner has announced that the entire personnel of the plant is being retained. Grover Beiter has been named general manager. Mr. Keefner is planning the development of new sand and gravel interests in the vicinity of Des Moines on a 50-acre deposit.

Start Plaster Shipments

GULF STATES GYPSUM Co., Houston, Texas, shipped its first carload of finished wall plaster in November. It will be known as Dixie Plaster. Work is nearing completion on the plant which is located about 4½ miles south of Hockley, Texas. Kent Diehl, general manager of the new plant, has announced that it is a two-kettle unit with a capacity of 200 tons of plaster daily. It will be recalled that Mr. Diehl was the founder and former president of Gulf Portland Cement Co., now owned by Ideal Portland Cement Co., Denver, Colo.

Build New Cement Plant

THE WASHINGTON-IDAHO LIME PRODUCTS Co., which abandoned its operations at Orofino, Idaho, as the result of an adverse court decision enjoining operations because of an alleged dust nuisance, has announced plans to build a plant near Spokane, Wash. The plant at Orofino had a capacity of 600 bbls. daily, and represented an investment of \$375,000. The new plant will have a capacity of 1500 bbls. per day.

Change Ownership

ELDRED STONE Co., Eldred, Ill., is the name of the former Eldred Crushed Stone Co., which has been sold by H. H. Armstrong to W. E. and W. A. Schwallenstecker.

Ideal Increases Program

IDEAL CEMENT Co., Denver, Colo., which announced a \$5,000,000 expansion program in August, has increased the amount to \$8,500,000. The addi-

tional \$3,500,000 is designed to balance out equipment to get maximum capacity at the corporation's cement plants at Ada, Okla., Trident, Mont., Houston, Texas, and Okay, Okla.

Rockwool Plant Improvements

NATIONAL GYPSUM Co., Buffalo, N. Y., has announced several improvements at its Mansfield, Mass., rock wool plant. A new mechanical bagger was placed in service, and a loading conveyor is to be installed in the granulating department.

Installing Long Kiln

OLYMPIC PORTLAND CEMENT Co., Bellingham, Wash., will install a new kiln 400 ft. long and 11 ft. in diameter which will replace the existing three 170-ft. kilns. Other modernization also is under way. While capacity will not be greatly increased, there will be considerable fuel economy and better efficiency with one long kiln.

Barytes Improvements

NEW RIVERSIDE OCHRE Co., Cartersville, Ga., has installed a revolving grizzly in its barytes washing plant, replacing a vibrating grizzly, which has increased capacity 25 per cent. Production is 1700 tons per month. The company also has announced that it has started a beneficiation plant in the barytes area near Tiff, Mo., and is producing about 800 tons of glass ore per month.

Buy Lime Concern

THE HOOSIER LIME CORPORATION, Salem, Ind., inactive since 1932, has been purchased by H. G. Hobbe & Sons, producers of crushed stone and agricultural limestone. Production capacity will be about 200 tons per day. Manufacture of lime also is planned for the future.

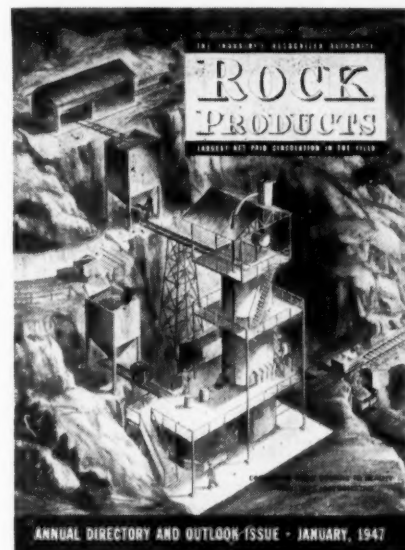
Ash Grove Improvements

ASH GROVE LIME & PORTLAND CEMENT Co., Chanute, Kans., has completed the pouring of concrete for six new silos which will increase storage capacity 30 per cent. With the six new silos, there are now 26 silos at this plant.

Pavement Yardage

AWARDS of concrete pavement for November and the first eleven months of 1946 have been announced by the Portland Cement Association as follows:

| | Square Yards Awarded | First 11 |
|--------------------------|----------------------|------------|
| | Nov. 1946 | Nov. 1945 |
| Roads | 1,970,417 | 22,958,921 |
| Streets and Alleys | 1,129,793 | 11,539,924 |
| Airports | 138,425 | 2,766,018 |
| Total | 3,238,635 | 37,264,863 |



Cover design this month shows (Azbe) kiln system for calcining magnesite at Magnesita, S. A., Belo Horizonte, Brazil

Cement for China

A CONTRACT totalling 420,000 English pounds has been received by Edgar Allen & Co., Ltd., Sheffield, England, for two complete cement plants for China. In addition to a complete cement plant, including raw and finish grinding, rotary kiln, and packing plant, the order includes a complete generating station for electricity. Each plant will produce 200 tons of cement daily.

Cement Production

BUREAU OF MINES reports that production of finished cement during October, 1946, totaled 16,410,000 bbl. or 48 per cent above that reported in October, 1945. Eighty-one per cent of capacity was utilized but production continued above demand and mill stock continued to decline to an October 31 total of 7,301,000 bbl., a figure 41 per cent below that reported for October, 1945. Mill shipments reached 17,721,000 bbl. in October, 1946, an increase of 33 per cent over that reported in the corresponding month of 1945. Demand for cement in October, 1946, was higher in all but two districts in continental United States than in October, 1945. Increases range from 6 per cent in Texas to 92 per cent in western Pennsylvania and West Virginia. Shipments also were lower in October, 1946, in Puerto Rico than in the corresponding month of 1945.

The following statement gives the relation of production to capacity, and is compared with the estimated capacity at the close of October, 1946, and of October, 1945.

| RATIO (PER CENT) OF PRODUCTION TO CAPACITY | | | | | |
|--|-----------|-----------|------------|-----------|-----------|
| | Oct. 1946 | Oct. 1945 | Sept. 1946 | Aug. 1946 | July 1946 |
| The month .. | 81.0 | 55.0 | 83.0 | 79.0 | 75.0 |
| 12 months | 64.0 | 41.0 | 62.0 | 59.0 | 56.0 |

HINTS *and* HELPS

PROFIT-MAKING IDEAS DEVELOPED BY OPERATING MEN

Fine Sand Fertilizer

WORKING A SAND DEPOSIT that contains different gradations in separate locations in the pit, Bryan Rock and Sand Co., Aberdeen, N. C., has placed



Hopper and chute for fine sand with portable car loader on platform

a hopper at the point in the deposit where extra fine sand is reclaimed. The sand is placed in the hopper by shovel, and is fed by movable chute into box cars where a portable car loader assists in filling the car. This fine product is sold as fertilizer filler.

Checking Blasting Circuits

By PAUL C. ZIEMKE

ELECTRICAL DETONATION requires a slightly altered technique as compared to the time fuse method. While protruding fuse ends must be checked and accounted for to insure none being overlooked at "spitting" time, electrical blasting calls for still greater caution. The small leg wires at each drill hole may be trampled on and obscured from view by the passing of driller's and blaster's heavy shoes as they churn up the mud, sand or snow. Later, unless the check reveals a short count, this missing or overlooked shot is not connected and fired with the result that unexploded dynamite is found in the muck pile. Missing a hole or two may also mean the difference between a successful blast and one that leaves a few stubborn "horses" of solid rock to bedevil the loading crew. Secondary drilling of such sections usually proves to be expensive and laborious.

Keeping leg wires and connecting leads up out of the muck so that none

are overlooked and to insure the splices being free of contact with conducting elements can be accomplished at no great expense by inserting small wands of willow or like stock in each bore hole as the last 8 or 10 in. of tamping material is rammed home. This wand, protruding about two feet, is used to support the pair of leg wires until the blaster connects the wires into which ever type of circuit is suited to the work at hand.

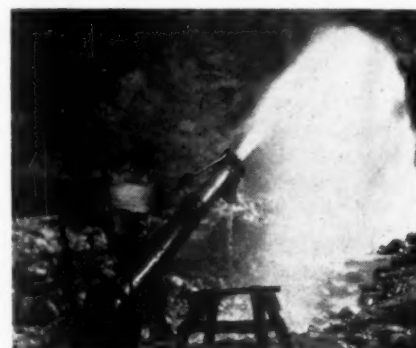
High-Pressure Hydraulic Excavation

By JACK E. PRUYN

WHEN OVERBURDEN must be moved quickly and in large quantities, a high pressure hydraulic monitor is often the ideal set-up. Such operations, however, usually require expensive and hard to get hand-labor for digging long, mountain-side water ditches and high pressure pipe lines.

The California Keystone Corporation recently solved this problem by procuring a 300-hp. Diesel generator plant from War surplus materials. The generator was replaced by a Gardner-Denver, Type D, centrifugal pump. The entire unit rests on metal skids which are an integral part of the motor and pump chassis. A Caterpillar 65 tractor is used to skid the entire unit to a new set-up in less than a half hour from stop to start.

Another advantage in addition to portability is the saving in high pressure pipe. Instead of adding more pipe as the operation progresses, the entire unit is moved to a new location. Little more than 100 ft. of high pressure pipe is required during the complete operation over a large area.



Illustrations show the Diesel engine unit and pump connected to a 3-in. monitor, ready to pump from the stream, and a close-up of the monitor in action

The pump puts through 3500 g.p.m. at 1450 r.p.m., and a 150-ft. head. According to the designer and owner, the unit operates at a cost of 65¢ an hour. This set-up will throw better than 120 ft. of solid water through a 3-in. nozzle at half speed. At full speed (1450 r.p.m.), and a 6-in. nozzle, the stream will hold solid before

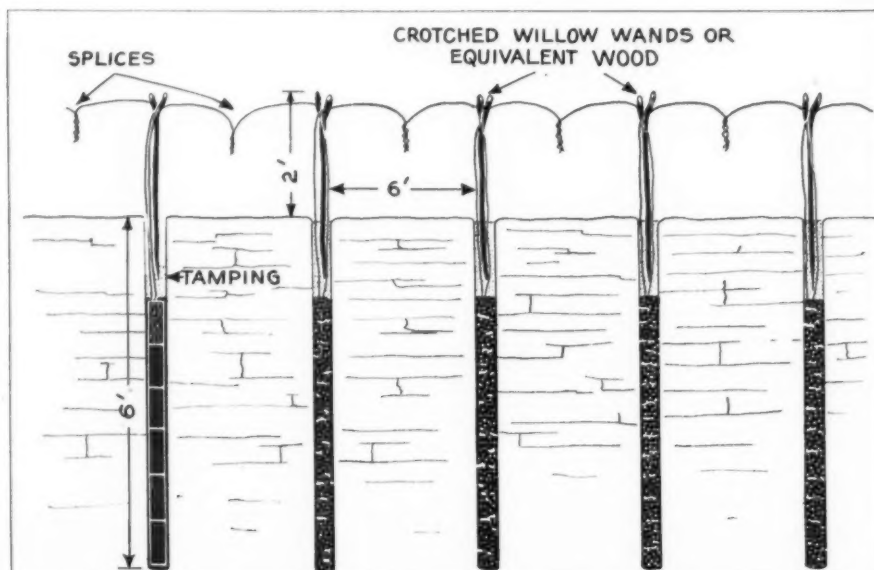


Diagram showing how willow wands keep blasting leg wires and connecting leads up out of muck

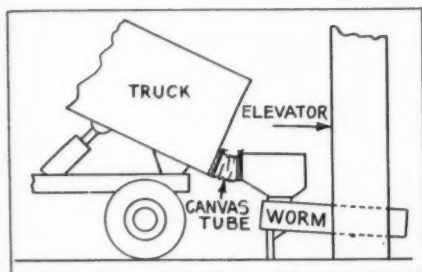
fanning up to approximately 140 ft.

The cost of installing this Diesel pumping plant, when compared to the estimated cost of digging the usual ditches and pipe line, ran one-third cheaper.

Prevent Cement Dust Loss When Unloading

By PAUL B. PURDY,
Flint Concrete Products Co.

IN the accompanying illustration is shown how the cement dust nuisance in handling bulk cement from trucks to plant bins has been largely elim-



Showing how canvas tube connection between truck bulk cement container and hopper prevents dust loss

inated. It is simply a covered hopper placed over the standard 10- x 16-in. opening in a screw conveyor extending to the boot of an enclosed bucket elevator. The opening into the covered hopper is 20- x 24-in., and to it is attached a double thickness, heavy canvas tube 24 in. long. The open end of this tube can be quickly slipped around the bulk cement truck discharge gate, and a draw string pulls it tight. Less than five minutes is required to secure all connections.

Measuring Thickness of Rotary Kiln Tires

By J. GILMORE WILSON,
Gen. Supt., Lime Division,
Warner Company

ONE of the perplexing problems with which operators of rotary kilns are confronted is a check-up of kiln tire thickness. The inaccessibility of

this equipment makes it difficult to check kiln tire wear.

The method and equipment developed by the Warner Co. to do this is shown in the accompanying sketch. The steel tape used can be any common ordinary pocket variety which, when straightened out, troughs slightly. A $\frac{3}{8}$ -in. I.D. tube is flattened with sufficient opening so that the steel measuring tape can move freely, and one end is bent at a 90 deg. angle, as shown in the illustration. To obtain constant, insert tape as shown and subtract distance "D" from tape reading. For example, if tape reading is $20\frac{1}{2}$ in., and distance "D" is $2\frac{1}{2}$ in., constant equals $20\frac{1}{2}$ in. minus $2\frac{1}{2}$ in., or 18 in.

To obtain tire thickness "C," measure distance "A," using straight edge across tire face. Insert measuring device at base of spacer blocks as shown, then extend tape until it contacts inside of tire. Distance "B" equals tape reading less constant, and tire thickness "C" equals "A" minus "B."

Concrete Conveyor Tunnel

GREYSTONE GRANITE QUARRIES, Henderson, N. C., delivers stone from a primary crusher in the quarry to the main plant by a 555-ft. belt conveyor,



Surge stockpile over 300 ft. section of concrete tunnel conveyor supplies stone when primary crusher is out of service

of which 300 ft. is enclosed in a concrete tunnel, shown in the illustration. When the primary crusher in the quarry is not in operation, due to a breakdown or other causes, the main



Stockpiling conveyor from plant discharges to surge pile over concrete tunnel section covering 300 ft. section of main belt when plant is not processing material

belt to the plant can be supplied by a surge pile over the tunnel section through draw-off gates in the top. This surge stockpile of 70,000 tons capacity has been built up by a belt conveyor, extending from the screening plant, during periods when material from the quarry is not sent through for final processing. The surge stockpile can be built up when the plant is not in operation or the plant can continue operation with material from the stockpile when the primary crusher is down.

Salvaging Waste Concrete

By C. M. BAIRD,
Baird Concrete Products,
Waterloo, Iowa

ALTHOUGH our plant only has a production of 500 block per day but produces several concrete specialties, such as water bowls and hog oilers, we still had the same problem as the larger plants in getting rid of clean-up material. Once a month this material was loaded on a truck and hauled to the dump.

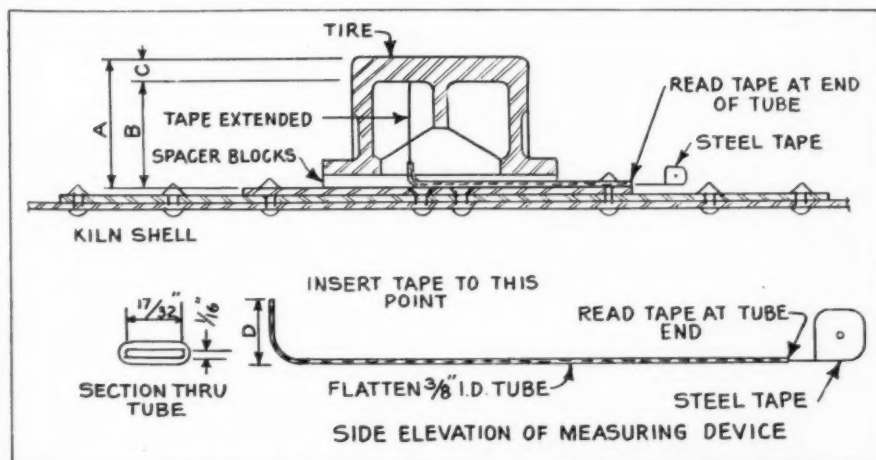
This problem was solved by mixing with a shovel about twice as much sand and gravel from the stockpile with the concrete clean-up material. In the morning this mixture is easy to break up with a shovel, and is thrown back in the stockpile. It not only saves some material but does away with the job of getting rid of a load of heavy waste every month load of heavy waste every month.

Mount Drill on Platform Over Truck Chassis

By WARREN C. ROWE,
Pres., Rowe Contracting Co.

WE OPERATE a quarry with a high face averaging approximately 150 ft. Our customary method of drilling is by benches, starting at the top and dropping down in 20 ft. steps until the quarry floor is reached.

This year an old Mack chassis was obtained on which a high-level plat-



Showing how rotary kiln tire thickness can be quickly checked with the aid of a steel tape, flattened tube, and straight edge



Truck platform for drilling

form was constructed 18 ft. above the ground. One of the Ingersoll-Rand 505 drills was mounted on the platform as shown in the illustration.

By backing this rig in close to the quarry face, we are able to drill horizontal holes all along the face at a height of about 23 ft. above the quarry floor with a minimum effort compared to our former method of drilling vertically at this level and moving the drill each time by hand.

Determining Depth Of Sand and Gravel

By R. F. MIRICK

TO DETERMINE the depth of sand and gravel deposits, we have used successfully the following methods:

An adjustable post-hole auger is used to start the hole. Sections of pipe are made up for the handle so that each joint in place adds 4 ft. to the length. This makes it easy to check on the depth reached as the hole becomes deeper.

To keep sand and gravel from dropping out of the auger, a "slip can" is used. A ½-gal. syrup pail works well for this with certain size augers or a tall fruit juice can may be used for a smaller auger. Melt or cut off the bottom, but leave a rim on top of the can that will not pass the auger. Adjust can in place over auger, rim upward. As the auger bores into the materials, the can is lifted, but as soon as the auger is started to raise out of the hole, the slip-can drops down, keeping contents of auger from spilling out.

In caving material, holes must be cased. Use light metal pipe, such as stove-pipe or conductor pipe, with joints made secure with wire so that sections can be added or removed as needed. Grain elevator pipe from abandoned threshing machines has been successfully used for casing test holes. This casing can be pulled and re-used many times.

The tools previously mentioned are all right for use until water is reached. When water is encountered, some kind of "sand bucket" must be obtained, and the casing weighted to force it down as the sand is baled out



Test boring for sand and gravel deposits in North Dakota, using threaded pipe sections, each 4 ft. long, as extensions on auger handle. Author stands near leg of tripod

of the hole. One successful arrangement is to use a sand bucket with a loose-fitting plunger as well as the usual clack-valve in the bottom. By jiggling this plunger up and down by short, snappy jerks upon the pull rope, the casing and the bucket would settle several inches into the sand. Then when the bucket was suddenly yanked upward, the casing would settle and the bucket could be raised to disclose its contents.

On another occasion (see illustration) when using an iron pipe casing, a sand bucket about 8 ft. long (right foreground) was made. This bucket only had a clack-valve in it, but after the sand had been churned up with a drill bit made from an old automobile shaft, the sand bucket would lift the sand. This was in a hard packed sand formation. The casing pipe on this job had to be weighted down by the men or with rocks to get it to settle satisfactorily. Manpower was used to pull the rope on this job, but a little engine with a "nigger-head" would have been much handier and not so tiring.

In Indiana, test holes have been put down using a "spring-pole" with which to suspend the churn rope. Test holes have been drilled through rock and coal strata using a drill bit suspended from such a spring pole, but of course a power drill of some kind is much more desirable to penetrate such hard strata.

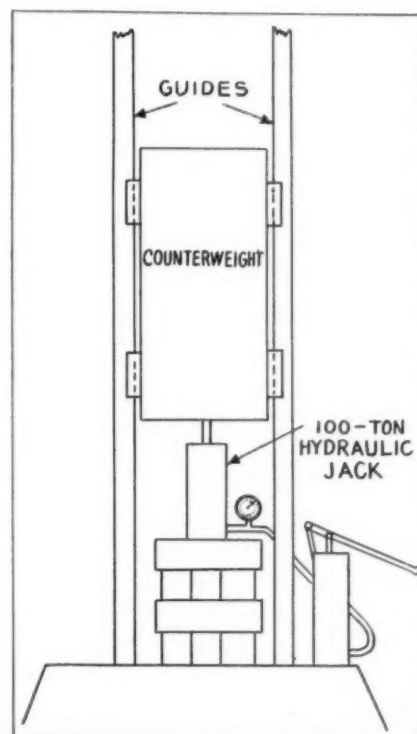
Weighing Without Scales

By H. CLINTON RAPP,

SOME TIME AGO it was necessary to determine the weight of a guided counterweight which was used on the tail end take-up of an aerial tramway traction cable. This counterweight was

a steel box containing scrap metal. It weighed several tons, and was mounted in guides in a tower, and could not be removed or placed on scales without considerable work and expense.

To obtain a very close approximation to the actual weight, a novel method was decided upon. The cylinder of a 100-ton capacity Rogers hydraulic jack was found to have a diameter of 5 in., or an area of 19.635 sq. in. The jack was placed directly under the center of the counterweight,



Set-up for weighing without scale

and the counterweight was lowered until it rested on the jack. A pressure gauge reading of 606 p.s.i. was obtained while raising the load slightly; also a reading of 600 lb. while the jack held the load in balance, and a reading of 598 lb. as the load eased the jack down. Assuming the holding pressure as 603 p.s.i., to allow for guide friction, gave a computed weight of 11,840 lb. for the counterweight. The entire operation required less than one hour, and the error in using this method probably was not greater than 100 lb. The oil pressure was applied carefully to avoid any damage to the meter.

This method could be used with fair accuracy for weighing any elevator car, mine cage or skip, or any load which could be stabilized laterally without appreciable guide friction.

Making Concrete Elbows

By H. W. WILKISON,
Concrete Products Co.,
Dwight, Kans.

TO CONSTRUCT concrete pipe elbows to any degree and any size, without special moulds, the following method is employed:

First, tip standard concrete pipe mould 30 deg. from vertical, and block it in the position shown in Fig. 1. Fill mould with concrete to level line A. Vibrate, or otherwise settle concrete so that the line A is on a horizontal plane. Let concrete harden for 24 hours. Then sprinkle some fine sand or sawdust over the surface A, set the mould back to vertical position, and fill with concrete to the line B, Fig. 2, making the two sections about the same length.

After forms are removed, separate the two sections along the division line A, Fig. 3, and turn the top section through 180 deg. and reset on bottom section. The two sections fit perfectly, and a 60 deg. elbow is obtained.

If a 90 deg. elbow is desired, tip the mould 45 deg., fill as before, reset mould in a vertical position, and make second run. Separate the two sections, turn one through 180 deg. and put



Two conveyors used to gain height in a limited space. First conveyor has turn head and chute so that material may be transferred to second conveyor going to bins or diverted to stockpile

them together for a perfect 90 deg. elbow.

If it is desired to reinforce the elbow at line A, use say, 6 in. of inert filler between the two sections (reinforcing having been placed in mould in one piece for entire height). After forms have been removed, cut reinforcing midway between the two sections, turn as before and lap reinforcing 3 in., weld, and fill space with concrete with trowel to make smooth surface inside and outside. Be sure the filler is of equal thickness and density throughout.

By using a variety of angles and lengths of sections, elbows of different radius may be made with each diameter of pipe; also various number of sections may be used for each "el"; that is, 2 to 4, by changing degree from the 30 deg. or 45 deg., as outlined above.

Dual Purpose Conveyors

A DUAL PURPOSE is served by two belt conveyors that deliver sand from classifiers to storage at the Grove Stone and Sand Co., Swannanoa, N. C. Shown in the accompanying il-

lustration is the double-conveyor arrangement, installed primarily to achieve height in a limited space. The end of the first conveyor was equipped with a turnhead that allows feed to the second conveyor for delivery to storage bins or diverts the sand to a stockpile immediately below the end of the first conveyor.

Spodumene Flotation

BUREAU OF MINES, Washington, D. C., has issued two bulletins describing studies on the flotation of spodumene and fluorite.

"Studies on the Flotation of Spodumene from the Edison mine, Keystone, S. Dak.," Investigation Report, 3892, by Gerald A. Munson and K. L. Erickson, indicated through laboratory tests that spodumene from this mine could be concentrated economically by flotation if a mill water is used that contains low concentrations of inorganic salts, particularly calcium and magnesium sulphates.

"Concentration of Fluorite from Metals Reserve Company Stockpiles," by M. M. Fine, W. A. Calhoun and R. G. O'Meara, Investigations Report 3893, describes results of laboratory flotation tests to investigate the possibility of producing acid-grade fluorite from these sources. Results of the experiments showed that acid-grade concentrates were recoverable by flotation with fatty-acid collectors. Subsequent pilot-plant flotation tests confirmed the results of the laboratory studies.

Sand for Metallurgy

MATHEWS-CURTIS Co. has completed erection of a new plant at Green Lee, Va., for mining and processing silica sand for metallurgical uses. The company has formerly been operating an aggregates plant at Waynesboro, Va.

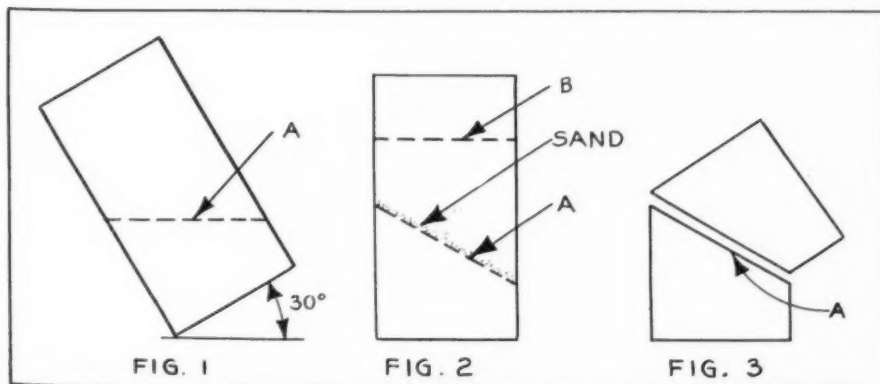


Fig. 1: Mould in position for pouring 30-deg. angle pipe elbow. Fig. 2: Ready for second pouring. Fig. 3: Position for 60-deg. elbow



MACHINERY

Industry Needs More New Equipment For High Production Demands

DEMAND for rock products in practically all branches is at an all-time high and both government and private industry studies point to heavy increases in 1947 and for several years thereafter. Under normal conditions, the cement industry would be shutting down in the winter for repairs and rehabilitation but empty storage bins will necessitate operation as long as possible. Many of the aggregates plants in the northern sections will operate as long as the weather will permit.

This condition will eventually lead to excessive repairs and will reduce the normal life of equipment so that replacements will have to be made much sooner than anticipated. Producers continue to complain that it is difficult to get new equipment with many manufacturers taking orders for delivery six months or a year after placement. With O.P.A. and C.P.A. out of the picture, it is hoped that many of the bottlenecks to a resumption of full production will be eliminated but strikes and more labor demands on the horizon point to more delays.

Many manufacturers have indicated that new equipment designs are well advanced, but they have shown a reluctance to bring out the new products, possibly because it is so difficult to make delivery on standard units.

Rock products producers in replies to a questionnaire have voiced the fear that there is some question as to whether the industry will be able to handle the anticipated large demand unless machinery manufacturers speed up delivery of equipment on order.

Producers are turning more and more to manufacturers of machinery to reduce unit costs due to the inability to secure labor and the low efficiency of much of the labor which can be attracted to the industry. Rock products producers who have been fortunate enough to obtain new equipment have been able in a number of instances to reduce unit costs of production in spite of a higher labor cost. In another article in this issue, it is brought out that there has been a 40 per cent increase in the fraction of unit cost represented by labor, but

some producers with the aid of new equipment have been able to hold unit costs down to the 1940 figure not withstanding higher wage levels.

In the cement industry several companies are installing or have on order some of the largest ball mills ever manufactured. Dust collection equipment is in demand not only to reduce stack losses and eliminate complaints but also as a labor factor in keeping the plant and premises clean. Long kilns are a definite trend with some of the most recent examples of installations being Monolith, Calaveras, Marquette, and Lawrence. A number of new plants are being planned in this country and some are now under way; such as, Ideal, Lehigh in Minnesota, the new Halliburton plant in Texas, one in Arizona, and North Carolina.

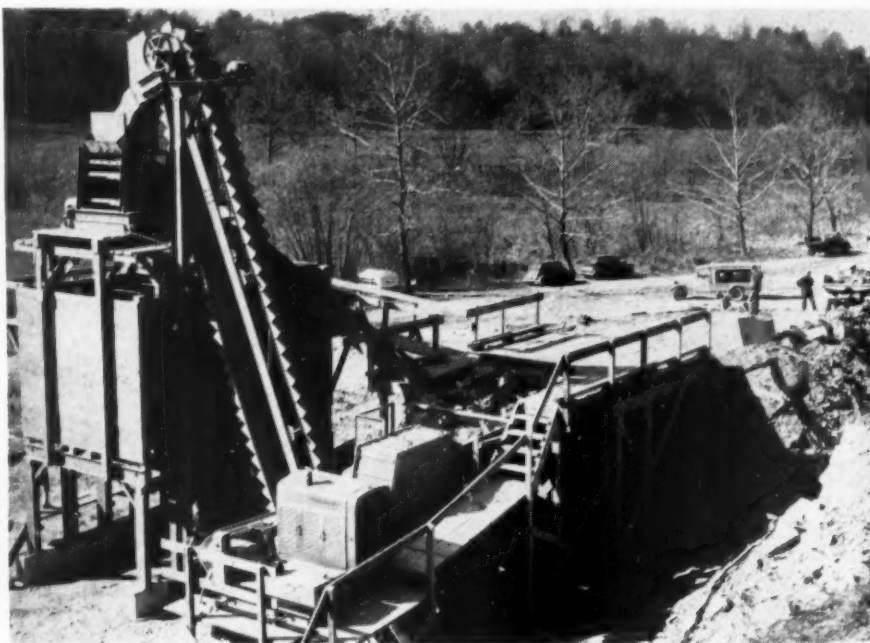
The crushed stone and sand and gravel industries are both confronted with demands for smaller aggregate sizes, and with the let-down of wartime demands, which permitted considerable latitude in meeting specifications, the States and Federal government are toughening up on

specifications. The fine sand problem is still with the industry. This all means more crushers, screens, and classifying equipment; more bins, stockpiles, conveyors, and loading and haulage units.

In ready mixed concrete, special haulage units have been designed to handle air-entrained concrete. Bin capacities and stockpiles have had to be increased to meet the more diversified demand for concretes. Batching facilities have become almost automatic in operation with the introduction of electronic controls.

Portable Crushing Plant With All-Electric Control

NEW HOLLAND MANUFACTURING CO., Mountville, Penn., has added a complete line of portable crushing, screening and loading plants. The crushing unit is a compact semi or full trailer assembly approximately 28 ft. long equipped with rear axle equalizers and removable front axle assembly. Brakes are Warner Electric, controlled from cab of towing tractor. The feeder is a heavy duty, all-roller bearing



Portable crushing units used in conjunction with bucket elevator, bin-mounted triple-deck screen, and return chute

reciprocating plate type with either solid or grizzly bar bottom with the length of feeder stroke adjustable.

Mounted at the front is a Diesel power plant which drives the breaker and is also belted to an electric generator. The generator supplies power for driving the feeder, conveyors, screen and elevating wheel on the screening unit. Push button stations on the operator's platform control the feeder, screens, conveyors and elevating wheel.

The heart of the portable plants is the 3030 Double Impeller Impact breaker which will take any size stone that will pass through a 30-in. square opening, and that is not over approximately 36-in. long. Regardless of the size of stone fed to the breaker, the manufacturer points out that products ranging from agricultural limestone, minus No. 8 mesh, to road ballast stone, minus 3½-in. can be produced in one pass. When a minimum of fines is desired the breaker is run at a slow speed; when a maximum of fines is desired the breaker is run at a high speed. Complete details concerning this crusher appeared in *ROCK PRODUCTS*, October, 1944.

The crushing unit may be used with a portable screening or screening and washing unit to produce specification stone or gravel; in conjunction with semi-portable bucket elevator and bin-mounted screen units; as a complete one-unit crushing plant for producing cubical crusher run stone or gravel for base course "traffic bound" roads; or with a grizzly plate feeder for bypassing gravel fines, it will crush boulders up to 30 in.

As a secondary crusher is not needed on the screening unit, a lightweight screening plant has been designed. One of the features is the return of oversize from the top deck of the screen to a return conveyor to the breaker through an elevating wheel arrangement. Through the use of blending gates any percentage desired of the sized stone passing each deck can be combined to meet specifications.

Tire Resists Bruising

THE GOODYEAR TIRE AND RUBBER Co., Akron, Ohio, has announced a line of truck tires to be known as the Road Lug, designed and developed for combination off-the-road and highway service. Production has been started in sizes 7.00-20 through 12.00-24, and ultimately sizes 13.00-24 and 14.00-24 will be made available, according to W. A. Kemmel, manager of truck tire sales.

This new tire is said to be particularly suitable for quarrying and strip mining services where heavy loads must be hauled over rocky and uneven surfaces. It is said to resist cutting and bruising, and provide traction in soggy ground. The tires are constructed with a rayon cord carcass, tread and sidewalls with nat-

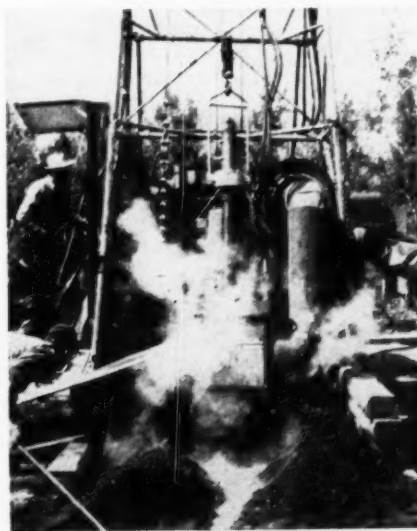


Tires designed for good traction and resistance against cutting

ural rubber content equal to prewar tires of same size, extra heavy layers of cushion rubber between plies and extra heavy rayon breaker. All sizes have multiple beads of high carbon steel wire.

"Fusion-Piercing" Blast Holes

THE LINDE AIR PRODUCTS Co., New York, N. Y., has announced a new method of making vertical blast holes. Tests have been made with taconite, a hard, low-grade iron ore in which 6-in. holes up to 30 ft. deep were fusion pierced at an average rate of 10 ft. per hour which compares with an average speed of 1 ft. per hour for drilling, according to the developer of this system. In fusion piercing, a flame produced by burning oxygen and a flux-bearing fuel in a special blowpipe is directed against the surface of the rock or ore. The 4000-deg. F. temperature causes some kinds of

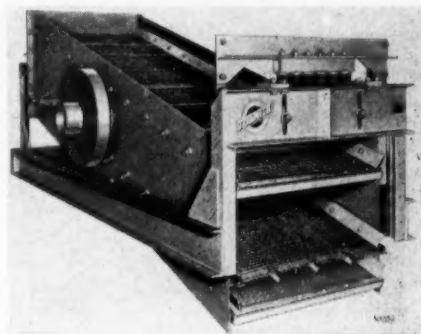


Test run of fusion piercing blast holes; blowpipe is approaching a full depth pierce

rock to spall or flake off. Flux in the fuel causes other kinds of rock to melt. Pressure of the burning gases forces the molten material past a water spray where it is quenched and broken up. In the quenching process water turns to steam and the steam helps the gases force the quenched material out of the hole. This is a patented process.

Heavy-Duty Vibrating Screen

SMITH ENGINEERING WORKS, Milwaukee, Wis., has introduced a two-bearing, heavy-duty vibrating screen designed for efficient screening of wet or dry sand, gravel, crushed stone and ore. This model is an outgrowth of the four-bearing, heavy-duty Tel-smith Pulsator. The Pulsator is still recommended for scalping service and for the finished screening of large sized aggregates or those sizes rejected by about 3-in. to 4-in. clear square openings. The two-bearing Vibro-King is recommended for finish screening of medium and small



Two-bearing vibrating screen with three-point suspension for vibrating mechanism

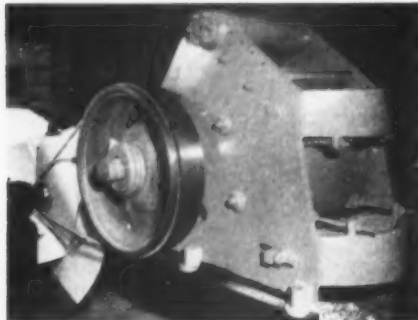
sized aggregates or those passing about 4-in. to 3-in., and smaller clear square openings and down to the finest mesh sizes.

In the two-bearing screen, the vibrating unit is mounted in the center of the live screen frame on two heavy duty roller bearings. Two patented, automatically adjusted and enclosed counterweights prevent "jumping" at critical speeds, making a smooth operating unit. The vibrating frame is mounted in the main frame on three nests of springs, one nest on one end and two on the other end, giving three-point suspension. The entire vibrating mechanism, including vibrating unit and screen cloth floats on springs. Spring suspensions have adjusting screws for quickly and easily changing the screening angle sufficiently for all screening conditions.

New Design Jaw Crusher

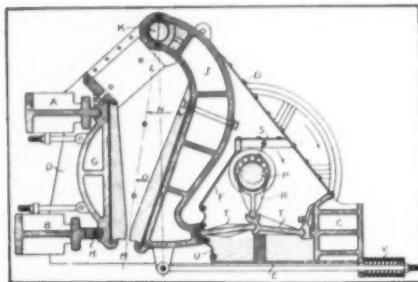
STRAUB MANUFACTURING Co., Oakland, Calif., has announced its line of Kue-Ken Simplex single jaw crushers which have the same crushing principle as the Kue-Ken balanced crusher. The outstanding advantage claimed

for this crusher is the principle of crushing without rubbing, used successfully in the double jaw crushers made by this company. As shown in the cross section view, heavy steel side frame plates *D* are rigidly tied together by the steel cross members



Smooth running jaw crusher operated with 5 hp. motor

A, *B*, and *C*, with the plates *E* and *F* forming a large oil bath and storage tank. The normally stationary jaw *G* is held firmly against the front cross members. Flat steel bars or spacer



Sectional view of single jaw crusher

shims *H* are easily removed or installed, controlling the size of the crushed product without disturbing the crushing motion. The swing jaw *J* hangs freely on the large hinge pin *K*. The jaw motion follows the arrows *N* and *O* so that the rock is nipped and crushed squarely, according to the manufacturer, without slippage and rubbing, reducing wear of jaw plates. The balanced feature of this crusher permits a long stroke to the pitman, while the relatively flat toggles impart a normal stroke to the swing jaw, giving low bearing pressures on the shaft bearings. Lubrica-

tion is provided by both splash and pump system. A new type of sealed enclosure for the hinge pin bearings permits flooded lubrication not only to the hinge pin bearing itself but also to the thrust faces between the frame and swing jaw hub. Oil cannot escape and grit cannot enter, according to the manufacturer. An overload safety device protects against tramp iron.

Three New Shovels

MARION POWER SHOVEL CO., Marion, Ohio, has announced a number of improved designs during the past year, but the latest developments in shovels are shown in the illustration.

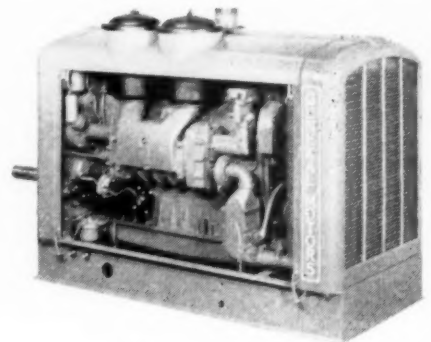
The type 93-M, which carries a 2½-cu. yd. dipper as standard equipment, is also adaptable for dragline operation. It has an effective boom length of 27 ft. 4 in.; effective dipper handle length of 18 ft. 5 in.; maximum dumping height of 17 ft. 10 in., with boom angle of 40 deg.; cutting height of 28 ft., and a cutting radius at maximum height of 34 ft. 4 in. It is available either with electric or Diesel power.

The type 111-M shovel, which carries a 3½-cu. yd. dipper as standard equipment, is also adaptable for dragline service. This shovel has an effective boom length of 32 ft.; an effective dipper handle length of 22 ft.; a maximum dumping height of 21 ft., with a 40 deg. boom angle; a maximum cutting height of 32 ft. 6 in.; and a maximum cutting radius of 45 ft. 3 in. A 150-hp. electric motor or Diesel engine is available for this shovel.

The type 151-M Ward Leonard electric shovel carries a 6-cu. yd. dipper as standard equipment, and also is designed for dragline service. It has "Amplidyne" or "Rotatrol" high speed electrical controls, and inside-type heavy-duty boom of all-welded construction. Shovel working ranges include: a boom length of 35 ft.; an effective handle length of 23 ft.; a boom angle of 50 deg.; a maximum dumping height of 24 ft. 3 in.; a maximum cutting height of 36 ft. 9 in.; and a maximum cutting radius of 46 ft. 6 in. The induction driving motor is 325 hp., the hoist motor is 225 hp., and the swing motor is 75 hp.

Package Power Diesels

GENERAL MOTORS CORPORATION, Detroit Diesel Engine Division, has made several changes in its "Package Power" line during the past year. The new type 2030C, two-cylinder Diesel



Enclosed 6 cylinder Diesel engine

has a maximum rated horsepower of 67, and a continuous rating of 43 at 1600 r.p.m.; the type 2031 has the same power rating but is equipped with wide panels and hood. The company also advises that the base on the short base open and enclosed package power models has been lowered and strengthened, reducing the height 9 in., as shown in the illustration of the 6-cylinder model 6030C.

Air-Cushion Clutch

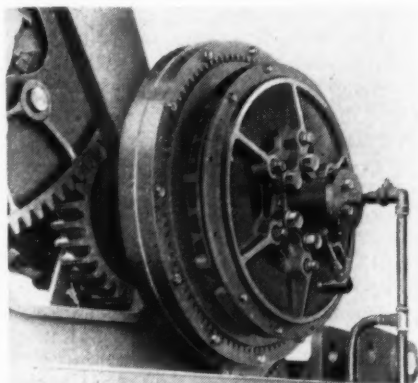
THE OSGOOD CO., Marion, Ohio, has developed the air-cushion clutch to provide smooth action in the operation of shovel air controls. Due to the ease of operation when using the air controls, it was found that the operators had a tendency to set the clutches too quickly, and in some cases caused the machine to jerk when the swinging clutches were engaged. This was not so apparent for the hoisting or crowding clutches but was objectionable on the swing. The air-cushion clutch is said to overcome this trouble.

It is of the disc type, the clutch being engaged by admitting air to a circular tube or doughnut. This tube is made of rubber and is confined between two plates, one of which is movable. When the air is admitted under pressure the tube expands and



Left: Type 93-M equipped with 2½-cu. yd. dipper. Center: Type 151-M Ward-Leonard electric shovel. Right: Type 111-M shovel which carries a 3½-cu. yd. dipper

causes the floating plate to clamp the friction disc between the floating plate and the back plate of the clutch. By means of metering valves, the pres-



Smooth shovel operation with air-cushion clutch

sure can be varied at the will of the operator and the load can be picked up as slowly or as quickly as the operator desires, yet due to the volume of air required it is impossible for the operator to admit air fast enough to cause the machine to jerk. All Osgood excavators 1-cu. yd. capacity and over have been arranged to use this type of clutch.

Hydraulic Truck Crane

THE MILWAUKEE HYDRAULICS CORPORATION, Milwaukee, Wis., has unveiled the first of its post-war units, the Model H-2 two-ton Hydrocrane. A simple hydraulic system operates the entire unit; boom, hoist, swing and even the clamshell bucket. The standard tubular boom raises and lowers as well as telescopes from 16 ft. to 22 ft. under hydraulic power, enabling operator to spot loads quickly and accurately; reach into box cars, over walls or piling, and a 360 deg. swing is provided. The manufacturer points out that stability is assured by means of hydraulically powered outriggers which can be independently extended or retracted both horizontally or vertically in three to five seconds.

The Model H-2 mounts on 1½-ton



Stripping overburden with Diesel tractor and dozer

trucks or special 6 x 6 drive jeeps available at the factory. For clamshell service a standard ¼-cu. yd. bucket, hydraulically powered, is available as well as a hydraulic low headroom bucket for congested quarters. This model was designed for small scale jobs, formerly requiring slow and costly hand labor.

Corrosion Protection

JOY MANUFACTURING Co., Pittsburgh, Penn., Sullivan Rock Drill Division, is now using Cadmium-electro deposit plating for all rock drills, and other pneumatic tools and parts to prevent corrosion, rusting and scoring. The name Sullivan Silver Streak has been given to this equipment to signify the method of plating. Under extreme pressure and high frictional heat, cadmium breaks down into cadmium oxide which adds lubrication to the moving parts.

Built-In Tractor Dozer

BAKER MANUFACTURING Co., Springfield, Ill., has announced a line of bulldozers developed specially for the new Allis-Chalmers 2-cycle, Diesel-powered HD-5 tractor. The HD-5 features a drawbar pull of 37.4 hp., with

five speeds from 1.46 to 5.47 m.p.h., with full visibility for the operator and simplified maintenance.

Built-in advantages claimed for the Baker bulldozer are: direct down pressure, low pressure hydraulic system, less linkage, fast blade control, and rolling blade action.

Housing Seal for Bearings

SHAFFER BEARING CORPORATION, Chicago, Ill., has designed a housing seal for roller bearing units called the "Z" seal. The seal element fits on an extension of the inner bearing race with minimum running clearance, providing an almost frictionless seal. It is held under moderate tension yet is permitted to float radially, correcting for radial displacement from any cause.

Dust Collector Cleaning Device

WESTERN PRECIPITATION CORPORATION, Los Angeles, Calif., has developed a new device for dislodging the precipitate from the electrodes of the dust collector. It comprises an automatic valveless air hammer which strikes a heavy blow at relatively low frequency. The hammer consists of a cylinder attached to the member to be jarred. Mounted vertically, the blow is struck against the head of the cylinder by a heavy piston.

Automatic Polarity

WESTERN PRECIPITATION CORPORATION, Los Angeles Calif., has devised a new inductive-type automatic polarity device which can be supplied as part of the dust collector rectifier equipment to provide automatic polarity selection and thus remove the possibility of operators forgetting to select proper polarity manually. In Cottrell electrical precipitation the usual practice is to maintain negative polarity of the rectified high voltage direct current on the discharge electrodes to apply maximum voltage.



Hydraulically operated truck crane for small jobs

Electronic Control

MOSHER ELECTRONIC CONTROLS, New York, N. Y., has made improvements in electronic regulation of pulverizer feeds which, it is claimed, have raised the output of the average mill from 20 to 35 per cent. Amplified signal is said to be the latest advance in coordinating feeds to maximum grinder motor load. This new principle does away with mechanical adjustment of critical relays as electrically regulated vacuum tubes replace such mechanical adjustment and eliminate moving parts. It is claimed that while the new type controls are sensitive to all changes in rate of feed to the grinder, they are not affected by fluctuations in power line voltage. A gasketed control box keeps out dust and other foreign matter.

Crawler-type Tractor

ALLIS - CHALMERS MANUFACTURING Co., Tractor Division, has announced the HD-5 as another addition to its line of crawler-type tractors. This 37 hp. tractor has several interesting features.

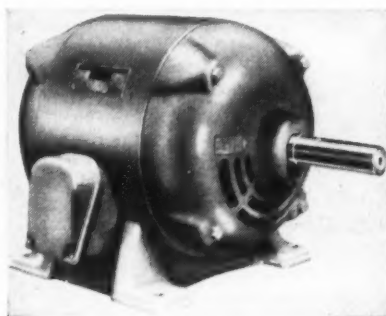
The new tractor has grease-packed truck wheels, idlers, and support rollers serviced at the factory, and thereafter greasing is only required once every 1000 hours. A General Motors 2-cycle Diesel engine powers the HD-5. The driver has a comfortable soft cushion seat with a good view of drawbar work, and accessible controls give five speeds forward, ranging from 1.46 m.p.h. to 5.47 m.p.h., and a reverse speed of 2 m.p.h. An A-frame track stabilizer design absorbs shock, and is said to eliminate twisting strains and provides rigid track alignment. Two different track gauges are available: a 44-in. tread (10,750 lb.)

and a 60-in. tread (11,250 lb.) plus 5 ft. 4¼-in. of track on the ground provide good ground contact.

This new unit is equipped to handle a variety of jobs, and for special assignments such allied equipment as the new hydraulic Tracto-Shovel manufactured by the Tractomotive Corporation, Findlay, Ohio. Baker and Gar Wood straight and angle type bulldozers have been specifically engineered to meet the needs of the HD-5. Accessories include a belt pulley, power take-off, pull hook, engine heater and hood side plates, etc.

Induction Motor

WESTINGHOUSE ELECTRIC CORPORATION, Pittsburgh, Penn., is now in production on an all-steel (frame, feet and end brackets) squirrel cage induction motor which is said to be 35 per cent smaller in size than its predecessor without sacrificing electrical properties. The "Life-Line" motor, as



All-steel induction motor lubricated for a five-year period

it is called, is lighter, more rigid and can withstand greater impact.

It is available in drip-proof, splash-proof and fan-cooled construction.

Sizes available are ½ to 20 hp., in voltages of 208, 220, 440, and 550; in frequencies and speeds of 60 cycle, 3500, 1750, 1150, and 865 r.p.m.; of 50 cycle, 2920, 1450, 965, and 720 r.p.m.; and 25 cycle, 1450 and 725 r.p.m. The frame is of rolled steel plate, end brackets of pressed steel, and it is of all welded construction.

Grinding Mills

THE MINE AND SMELTER SUPPLY Co., Marcy Mill Division, Denver, Colo., has announced that it has developed some extremely large diameter ball mills and has introduced high speed rod mills. In addition to increased tonnage, there are said to be substantial savings in labor and maintenance cost. This company is of the opinion, however, that the size of ball mills will probably not greatly exceed 10-ft. in diameter by 13 ft. in length.

An outstanding example of large mill installations is the Morenci plant of the Phelps-Dodge Corporation where twenty-seven 10- x 10-ft. ball mills were installed during the war.

Rod mills also have reached extremely large sizes. Two installations in recent months include 9- x 12-ft. open-end rod mills. This company recently completed an 8- x 12-ft. rod mill which will be fed from both ends, and will discharge in the center through ports in a center ring. It was designed to take coarse gravel and grind it with a minimum of fines. Rod mills are now being run at speeds up to 500 ft. per minute, greatly increasing tonnage.

Hard-Facing Electrode

THE LINCOLN ELECTRIC Co., Cleveland, Ohio, has announced development of high-carbon electrodes for building up worn steel parts by welding with low-voltage a.-c. transformers as well as d.-c. The new electrodes are designated as "Hardweld 50 A.C." and "Hardweld 100 A.C." to differentiate between "Hardweld 100" and "Hardweld 50," which operate only on d.-c. The new electrodes, which have a heavily extruded shielded-arc-type coating, are said to produce flat, smooth beads and the deposits can be hot-forged.

Mechanical Testing Screen

GILSON SCREEN Co., Mercer, Penn., has brought out a mechanical testing screen designed to size test samples of crushed stone, gravel, slag, and similar materials. It handles up to one cubic foot of sample, and from two to seven separations simultaneously. It is said that screen action is so adjusted that separation approaches the theoretical refusal point very closely even when samples contain elongated fragments and materials varying in density. It also has been found useful for concrete research.

A sand attachment also has been perfected which uses standard 8-in.



Crawler-type, Diesel-powered tractor easily accessible for maintenance

diameter testing sieves in conjunction with the vibrating unit. This attachment is optional and can be inserted in any Gilson testing screen or removed in a few seconds with only two manual operations.

The vibrating unit consists of a number of interlocking spacers which support and separate the screen trays. The equal clearance between trays permits a clear view of the operation and the independent removal of each tray. Six screen trays are held in vibrating position.

Improved Hose

GOODYEAR TIRE & RUBBER Co., Akron, Ohio, has announced its Black Wing cord line, water and air hose. It is claimed that with its horizontally-braided construction and method of bonding cover, the hose has rope-like flexibility and maximum ruggedness. For water service the hose is built in $\frac{3}{4}$ -in. to 2 $\frac{1}{2}$ -in. sizes, and for air service it is available in two types: two-braid standard for pneumatic tool service, and three-braid heavy duty for air drill usage with sizes ranging from $\frac{3}{8}$ -in. to 1 $\frac{1}{2}$ -in.

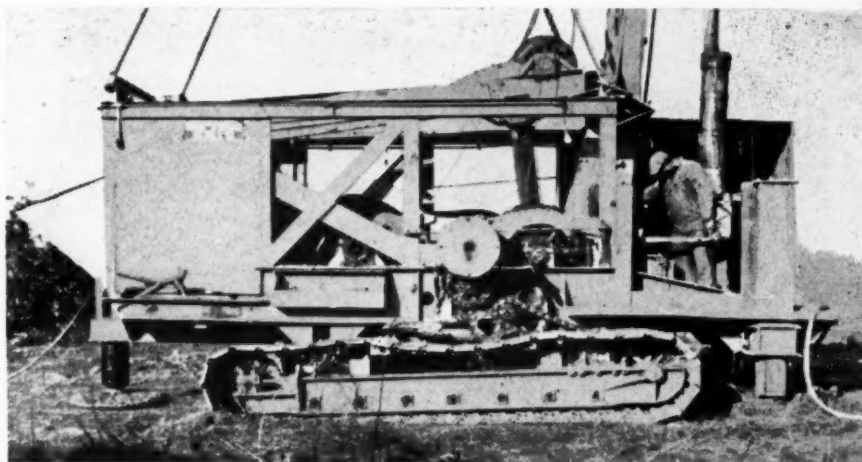
Electro-fluid Drive Reduce Maintenance

LINK-BELT Co., Chicago, Ill., has designed a packaged power unit known as the Electro-fluid drive, available in horsepower up to 20. It is a compact, motorized hydraulic combination consisting of a general-purpose, a.c. induction motor flange-mounted on a sturdy housing containing a hydraulic coupling, called a "fluid" coupling. Its output shaft may be direct-connected to the driven machine or to a speed reducer unit. It may also be connected to driven machine through the medium of chain, gear or belt drives.

Each fluid coupling has a primary and a secondary element. The primary element may be likened to a centrifugal-pump impeller and the secondary, or output element, to a waterwheel or runner. The coupling is filled with a light mineral oil of steam-turbine quality. When the motor drives the impeller, it causes oil to flow through



Electric motor with fluid drive



Churn type blast hole drill has permanent operator's cab

the runner buckets back to the impeller, thereby rotating the runner through the medium of the oil. The torque of the motor is transmitted from impeller to runner by the fluid in the coupling. There is no mechanical connection between the two elements of the fluid coupling.

Folding Safety Spectacles

WATCHMOKET OPTICAL Co., INC., Rhode Island, has designed industrial eye protection equipment so that the semi-rimless type frame is hinged to fold at the bridge. A hollow, stainless steel temple telescopes to one-third normal length, the entire goggle folding to the size of a pack of cigarettes. Lenses are of shatter-proof Impax plastic, especially resistant to high-velocity impact. Hinge between temple and frame will lock automatically in open position, and temples are available in three different lengths.

Silicone Greases

DOW CORNING CORPORATION, Midland, Mich., has developed three silicone greases to supply the need for high and low temperature lubrication. One of these greases, DC 41, is compounded of almost entirely inorganic materials. It is black in color due to the use of very finely divided carbon black as a thickening agent. It contains no graphite. DC 41 is corona-resistant, and is a semi-electrical conductor because of its carbon black content. Of the other two greases, DC 33 is light grey, and DC 44 is light brown in color. They are compounded with metallic soaps, selected for their heat stability, and are serviceable at temperatures as high as the melting points of the metallic soaps. DC 33 is designed primarily for low temperature lubrication, but also operates efficiently at elevated temperatures. DC 41 and DC 44 are designed for high temperature lubrication.

Level Blast Hole Drill With Hydraulic Jacks

BUCYRUS-ERIE Co., Milwaukee, Wis., has developed a churn type blast hole drill in which hydraulic leveling jacks are built into the machine. It is said that the Model 42-T, as it is called, will save as much as 15 per cent in drilling time.

The jacks, which are obtainable on this model as extra equipment, are controlled by valves located at the drilling end of the machine, close to the drill operating levers. The three jacks are attached to and operate three spuds mounted on the drill frame, two at the drilling end and one at the power unit end. The jack cylinders are 5 in. in diameter, have a maximum travel of about 28 in., and are operated with a maximum pressure of 1500 p.s.i. Pressure for the jacks is supplied by a motor-driven pump on the 42-T electric machine, and by a pump, belt driven from the jackshaft on the Diesel machine. There are separate control valves for each jack.

Self-Loading Haulage Unit

R. G. LE TOURNEAU, INC., Peoria, Ill., has announced that production has started on a small self-loading Tournapull with a 3 $\frac{1}{2}$ -cu. yd. struck capacity. It is said to be especially useful in stripping and working small sand and gravel pits. The new unit also can be used for stockpiling, cleaning up around quarries and pits, and for road maintenance.

Centrifugal Pump

THE ALLIS-CHALMERS MFG. Co., Milwaukee, Wis., has announced a new line of "Pedrifugal" pumps to meet the need of a pump of moderate capacity. This new line of cast iron bronze-fitted, pedestal-type centrifugal pumps comes in three principal sizes; 1- x 1-in.; 2- x 2-in.; and 3- x 3-in. Capacities are from 10 to 500 g.p.m., at heads from 10 to 100 ft., with power requirements from $\frac{1}{4}$ -hp. to 15-hp.

Maneuverable Lift Truck

YARDMAN, INC., Jackson, Mich., is in full production on its Model D lift truck shown in the illustration. This gasoline-engine driven haulage unit



Showing how lift truck handles heavy loads

has two speeds; low for starting, and climbing ramps, and high for light loads and when empty, ranging from one to 5 m.p.h. The power unit is a Briggs & Stratton Model AP 2 1/4 hp. engine.

Several new features have been incorporated in the design. A new fly-ball type governor on the engine is an improvement over the old pneumatic type. Capacity of the gas tank has been changed from 2 quarts to one gallon. Load wheels are 4-in. tread, and V-type belt brakes are used which are always set when machine is not in action. Drive wheels are two 4 1/2-in. by 14-in. Platform lift is 3-11/16-in.

Crusher Improvements

LIPPMANN ENGINEERING WORKS, Milwaukee, Wis., has brought out a new type rock feeder, and has made several improvements in its self-propelled screening, crushing, and load-in plant.

The portable crushing and screening plant which has been manufactured since 1939, is now steered hydraulically. A simple, duplex clutch arrangement also has been installed for operating the plant machinery and the self-propelling mechanism separately.

The rock feeder is said to be different than the conventional apron style, and is composed of a series of cast steel plates so made as to hinge together in an endless length of conveyor. In other words, each pan is pinned to the pan preceeding it to form one interlocking unit.

Welding Contest

THE JAMES F. LINCOLN ARC WELDING FOUNDATION, Cleveland, Ohio, is continuing its award programs to stimulate scientific research and design involving arc welding. For the present program, \$200,000 has been provided for 452 awards for papers embracing every field of industry where arc welding may be applied.

Awards will be made in various classifications of divisions, embracing such equipment as electrical machinery, construction machinery or parts, conveying machinery, pumping and compressing machinery, etc.

Welder with Arc-Booster

THE LINCOLN ELECTRIC Co., Cleveland, Ohio, has placed on the market its "Fleet-Arc" alternating-current welder which is equipped with an "Arc Booster." The arc booster augments the current the instant the arc is struck. The arc is started automatically the moment the electrode touches the work. This added feature, it is claimed, has been accomplished safely without the use of special high frequency devices or higher voltage.

A selector switch on the front of the welder governs the amount of booster current to be used in striking the arc, providing a complete range of striking intensity in welding thin sheets



A.C. welder manufactured in 200, 300 and 500-amp range

or heavy plates. Current control, continuous and self-adjusting, is provided by the rotating reactor control. Amperage is indicated on a calibrated dial on the face of the welder housing. A separate power transformer and adjustable reactor control are said to enable the Fleet-Arc A.C. to duplicate the wide range of output of d.c. welders.

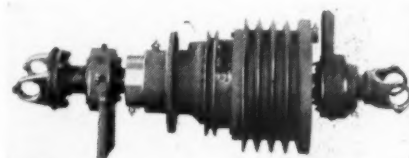
Materials Handling

CLEVELAND, Ohio, will be host to the first national Materials Handling Exposition to be held at the Public Au-

ditorium, Cleveland, January 14 to 17. All phases of materials handling will be discussed during the four-day meeting, and special consideration is to be given to problems concerning the stone and sand and gravel industries, according to the announcement. Hoists, hoist mountings, cranes, derricks, conveyors, hand and power trucks, skids and pallets, tractors and trailers will be on exhibit.

Power Take-Offs

DAVEY COMPRESSOR Co., Kent, Ohio, has announced organization of a Truck Equipment Division to handle power



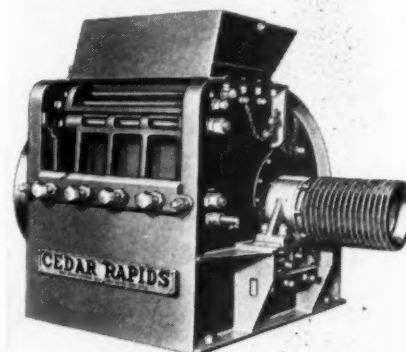
A 75-hp. power take-off with V-belt pulley

take-off equipment. Eight standard models of heavy-duty power take-offs have been developed which are available in three separate capacities: 50, 75, and 100 hp. The model 50 take-off is manufactured in both single and simultaneous drive designs. Models 75 and 100 are manufactured for single drive, simultaneous drive and also for double drive.

Improved Hammermill

IOWA MANUFACTURING Co., Cedar Rapids, Iowa, is now in production on its new 4033 hammermill which is said to give a uniform, fine product. The hammers have a 33-in. swing diameter. A full 180-deg. grate area is provided for high capacity. Another feature is slotted liner plate in which the slots fill up with rock and aggregate to help pulverize the material and cut down wear.

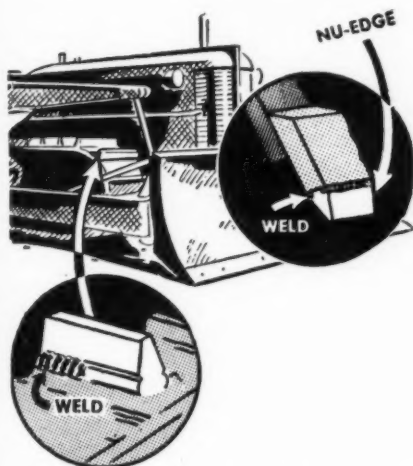
The company also is offering a portable hammermill crushing and screening plant in which all the crushing is handled by a 4033 hammermill. This unit is claimed to be especially suited for use in producing agstone or road stone or both, depending upon the crusher setting.



Hammermill operates with 150 to 250 hp.

Dozer Wear Plate

THE ALLIED STEEL PRODUCTS, INC., Cleveland, Ohio, recently placed on the market a special steel bar for salvaging bulldozer, drag and maintainer



Showing how steel bar is used in a dual role for repairing grouser bars on track shoes and for rebuilding dozer blades

blades. The Ne-Nu Edge Bar, as it is called, can be welded to the square or worn edge of the blade with an all-purpose high grade steel electrode, such as an AWS 6012 or 6013. To prevent wear on the weld, this bead is then covered with a thin layer of hard-surfacing electrode. The same material also is used around the ends or corner castings where the most severe wear takes place.

Pulverizer Hammer Patent

AMERICAN BRAKE SHOE Co., American Manganese Steel Division, Chicago Heights, Ill., has announced that U. S. Patent 2,397,776, covering the Amsco-Clark pulverizer hammer has been issued to J. O'Fallon Clark and assigned to the company. This renewable and reversible hammer has been used in stone quarries and cement mills for several years.

New Bulk Cement Cars

PENNSYLVANIA RAILROAD Co. has ordered 408 bulk containers, with a maximum capacity of 8 tons each. They will be used as containers for lime, fluxing stone, ferro-manganese, silica sand and other steel constituents. These units, in batteries of 12, will be mounted on specially equipped gondola cars. Containers on the cars will be moved directly to sidings within the steel mills where they will be handled by crane to the furnaces.

Foundry Sand Research

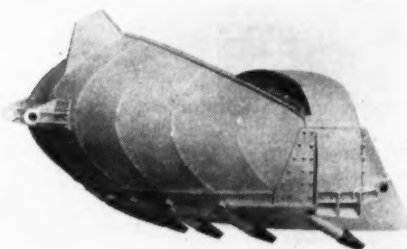
BRITISH COLUMBIA RESEARCH COUNCIL, Vancouver, B. C., is sponsoring an experimental foundry station for metallurgical research at the Vancouver Technical School. Among the subjects to be studied will be better

sources of sand and coke. Facilities will include a cupola furnace, non-ferrous melting unit and sand testing and moulding equipment.

Scraper Developments

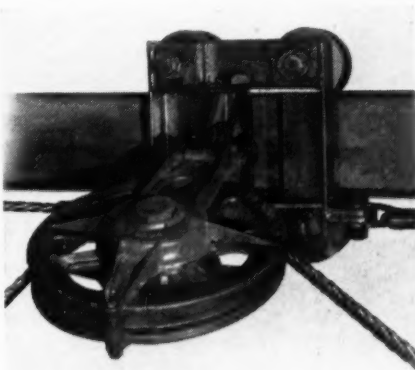
SAUERMAN BROS., INC., Chicago, Ill., has brought out a very large scraper bucket of 15-cu. yd. capacity, known as the Crescent Mammoth. It is claimed that by refinements in cutting lines and reduced weight-strength ratio, the 15-cu. yd. scraper bucket can be operated by a power unit scarcely larger than for the 12-cu. yd. scraper bucket.

Another development of this company is a new trolley for carrying tail



Scraper bucket of 15-cu. yd. capacity

blocks on monorails in power drag scraper systems. Designed to ride the monorail on four double-flanged, steel



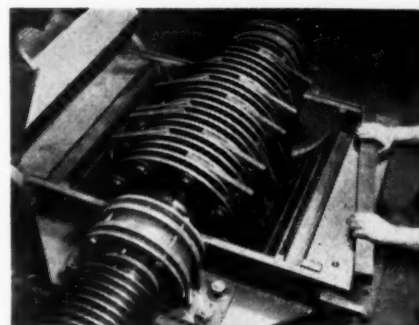
Monorail trolley for shifting tail block of drag scraper

wheels, the trolley mounts a Durolite block through which the drag scraper cables pass. It is adaptable to hand or power shifting.

Heavy-Duty Hammer Mill

BUFFALO HAMMER MILL CORPORATION, Buffalo, N. Y., has added a heavy-duty model, W-30H, to its line of 16 standard types. This new model has an overall height of 47 in., base 38- x 53-in., and charge opening of 24- x 30-in. According to the manufacturer, the revolving hardened steel hammers operating at 1000 to 7500 r.p.m. hit the material while suspended in mid air to eliminate the generating of heat from the friction of rubbing and crushing actions.

A built-in trap protects against damage from foreign substances. Ma-



Showing working parts of hammer mill. Braker bars are easily removed, and reversible hammers provide four edges for each hammer

terial may be discharged two ways; by gravity from the bottom of the machine or by conveying pneumatically to a collection system.

Ton of Concrete Pipe Requires 4.4 Man-hours

A SURVEY by the Bureau of Labor Statistics, U. S. Department of Labor, reveals that production of one ton of concrete pipe requires an average of about 4.4 man-hours at the plant under 1946 conditions.

The 34 concrete pipe plants surveyed were producing at a monthly rate of 29,000 tons of pipe, each ton equivalent to an 8½-ft. length of 24-in. pipe, without reinforcing. Considerable variation in labor requirements was noted between those plants which produced 1400 tons and over per month and those producing less than 500 tons during the same period. Some variations were found to exist between plants in different geographic areas, ranging from 4.0 man-hours per ton in Pacific States to 6.2 man-hours in the Northeast.

In addition to the man-hours at the concrete pipe plants, information and estimates were obtained on labor requirements for extraction of raw materials and fuel used, hauling of these to the plant, and transportation of the finished pipe to its point of use. It was found that these operations along with manufacture required about 7.6 man-hours for a ton of pipe, delivered and ready for use.

Sell Quarry

FRANK SNYDER of Bethany, Mo., has purchased the Daviess County Quarry north of Gallatin from Owen Case and Ivan Wilder. Mr. Snyder has been superintendent of the L. W. Hayes Co. quarry at Gallatin for the past 10 years.

Open Block Plant

GRAY'S CONCRETE PRODUCTS Co. has opened up its new Graystone plant at the Old Sloss-Sheffield site in East Florence, Ala. A banquet for masons and contractors of this area was held to announce the new plant facilities.

Big Construction Volume in 1947

By BROR NORDBERG

OUTLOOK for business in the rock products industry this year is very favorable by comparison with 1946, as appraised by the industry itself. The majority of those producers who favored the editors with replies to a questionnaire designed to develop a cross-section of opinion on business outlook, prices, handicaps to operation, the labor situation and plant rehabilitation believe that 1947, in the face of all manner of uncertainties, will be a good year for the industry.

The unprecedented backlog of necessary new construction and maintenance undoubtedly is the reason for the show of optimism despite yet unsolved obstacles to operation. Many predictions of better business are qualified on the premise that labor productivity must be raised and shortages of men and materials be eliminated, while other producers far in the minority, believe that strikes and low labor productivity will seriously handicap 1947 operations.

Realizing that questionnaires have plagued all industry during the war years, the editors timed their questions to follow the Congressional elections, in anticipation of a change in government that the industry believes will be more favorable to business—including abolishing much of the senseless questionnaires. Response from all geographical sections, indicated that the removal of controls as anticipated, would open the way to re-establishment of business along competitive standards which will result in early reduction in prices that will give impetus to construction and all other types of business.

Our questions, eight in number, together with general summary of replies and comment follow:

What are the prospects for business in 1947? How will volume be proportioned as to public works and private building? As to highways, industrial building and residential?

Portland cement manufacturers expect excellent volume of business, to surpass that for 1946 which, according to the Construction Division, Department of Commerce, will exceed 137,000,000 bbl. shipped and production at a yearly rate of 152,000,000 bbl. (based on first 8 months of 1946). If predictions prove correct, volume will approach some of the best years in the experience of the industry.

The pattern of consumption has undergone change and the proportions between various kinds of building in

Large tonnage projects now under way to boost business to new high levels. Producers strive to reduce unit costs by plant modernization

1947 depend much on government policy, in the opinion of some manufacturers. Some predict that the building industry and portland cement industry will be pushed during 1947; others say that private building will require the entire construction capacity of the country, provided government interference is eliminated. Recent developments, of course, have indicated a trend toward removal of restrictive laws on business.

It is evident that relatively more cement is being used for residential construction than before the war while less cement, so far, is going into highways, streets, roads and conservation. Proportions that will go for the various classes of construction hold the key to sustained large volume of cement and aggregates shipments, due when emphasis is shifted to highway construction and other heavy volume classes of construction.

One cement manufacturer voiced the sentiment of a number of other producers appropriately, saying:

"Barring quite possible upsets and in some degree in spite of them, business in the heavy industries should be excellent in 1947, especially cement. Public works should be held to a minimum except for urgently needed highway construction and reconstruction. Private industrial and residential building should be stimulated to the greatest possible degree for at least a year."

Others expressed the opinion, while still predicting good volume of business in 1947, that substantial construction will lag until costs become stabilized and the overall business picture becomes more clearly defined.

Apparently, these manufacturers' opinions are borne out by what has taken place in highway construction during 1946 and by expression of leaders in the field of highway construction. The three billion dollar road building program has not been advanced as rapidly as federal and state highway officials expected when the Federal-aid Highway Act of 1944 was authorized by Congress.

Just as producers in all branches of the rock products industry report, reconversion problems, strikes in the steel mills and coal mines and shortages of men and materials, have retarded the highway program. Under the existing conditions, the actual awarding of contracts totalling close to \$600,000,000 for road construction during the first nine months of 1946, while far below the amount authorized, is excellent. Actually, it represents more construction than highway contractors can handle under present conditions.

Thomas H. MacDonald, Commissioner of Public Works, Federal Works Agency, appraised the likely effect of removal of all governmental regulations on the use of construction materials (December, 1946, issue of **HIGHWAY BUILDER**) by stating that predictions as to a speeding up of the highway program in 1947 must be qualified because of many uncertainties. Citing the fact that the percentage of contract bids rejected on Federal-aid projects has recently shown a slight decline, he indicated that there was a trend toward more conservative bidding by contractors, which is encouraging. However, he believes that highway construction costs in most states are still too high to justify large-scale operations.

Drawing a parallel with conditions following World War I when highway construction costs remained at high levels for two years after the war, he believes it possible that construction prices have reached their peak and will begin to level off as the production of road materials increases in volume. On this assumption, any marked shift toward lower prices and increase in volume of work would not come about before the second half of 1947. And that prediction would be contingent upon availability in larger quantity of structural steel, cement and other road materials; firm price quotations; dependable dates of delivery; holding a reasonable level on wage rates; and settlement of labor troubles.

Government controls on construction materials have not appreciably retarded the highway program so their removal will not automatically speed the program, according to Mr. MacDonald. His advice to road builders is to proceed cautiously until conditions in the labor and materials market become stabilized; that projects involving construction activities that will extend over a long period of time be deferred while placing em-

phasis now on necessary highway maintenance.

A southern cement manufacturer summed up the overall business picture in the following:

"The picture for 1947 and succeeding years will depend much on national leadership, the correcting of unwise and uneconomic laws and the addition of new ones to properly fill obvious gaps.

"American labor has been exploited outrageously by highly placed politicians, badly advised, worse led and is dizzy. Nevertheless I believe it is basically sound and the best in the world. Getting it back to the old standards of pride of craftsmanship, fairness, loyalty and honest effort—while it may be painful—need not be a long or a very difficult process.

"Management is also off balance. Too much war-induced wasteful cost plus production; too much harassment and interference with its proper functioning; too much 'take' from its corporate and individual incomes; great difficulties in procurement of equipment and supplies. This can also be corrected, with little pain (rather the contrary) and without too much difficulty.

"To change the subject, it is about time to re-check the estimated capacity to produce cement in the country. Many plants have been closed, many others rebuilt for lower capacity. And many of the original figures, adding up to 250,000,000 bbl. total, were not correct. The year 1942 kept the industry pretty busy."

Aggregates

Aggregates producers also look forward with confidence into 1947. Practically every one of many predictions received from sand and gravel producers indicated that 1947 will be a good year for the industry. A few, however, qualified their forecasts according to what the federal government will do. The November election results very definitely had bearing on many forecasts. Some producers anticipate that demand will far exceed supply in their own localities, and are preparing for the greatest volume of business in their history. There is evidence of sentiment, among some sand and gravel producers, that public works should be held to low levels for the present and, in a few local cases, that public works already are taking too much of the tonnage.

The opinion of many is summed up fairly well in the remarks of a southern producer, who commented:

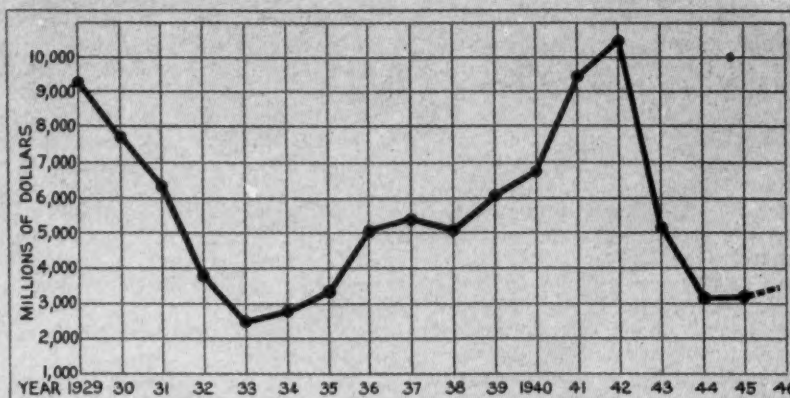
"1947 will be a boom year for sand and gravel. Volume will not come from public works, but rather from railroads, highways, farm to market roads and private building. Heavy and light industries will construct additions and improvements of a permanent nature, municipalities will expand and use large tonnage of sand and gravel for new streets, sidewalks,

etc. A good year is in prospect for those that planned for it."

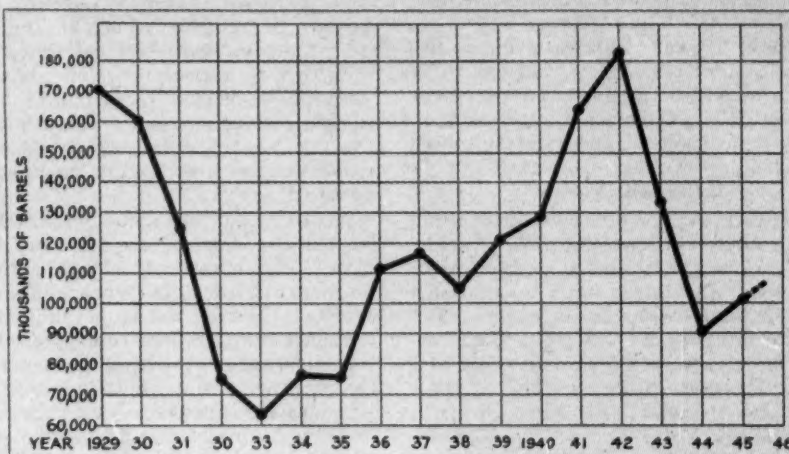
This producer, who apparently has not been blinded by the non-competitive conditions which have existed, has been looking ahead and offers the following sound advice:

"My advice to the sand and gravel industry is 'Don't let the rocking chair get you.' Competition is going to be keen and plenty tough. New plants will spring up. Old customers will remember whether or not they were taken care of during the war years, politely and adequately, or whether they were given the old 'There's a war on' when they needed your material. War contractors with their large tonnage orders were given preference the past few years and smaller customers were pushed aside.

"The smaller customers are now in the saddle and sales departments will have to learn to realize their importance and go after all tonnage, large or small, with a particular emphasis on courtesy and friendliness. Production departments should increase tonnages and do a better job of washing and screening. For lack of standard specifications on most jobs, plants should be so designed that changes in gradation can be made quickly instead of having to re-build the entire screening plant.



Above: Trend in construction volume for the period from 1929 to 1946. Below: Note how closely the curve of cement production follows construction volume



"Management should promote, with architects and engineers in their own locality, specifications designed for the area that the plant has to serve. The industry as a whole now will have the opportunity of running its own affairs. Let's get rid of the lead and go to work. Manufacturers of equipment we need, please note."

It is impossible to draw definite conclusions as to the relative proportion of volume of sand and gravel that will be used in public works construction or private building, or according to types of work. There are far too many variables, nationally, at this stage and, of course, local conditions affecting individual plants have bearing. Estimates range from 20 per cent public works all the way to 80 per cent, giving the exact reverse prediction between plants, although a fair percentage predict that tonnage will be approximately equal in proportions between public works construction and private building. A producer from Texas anticipates that public works will take 80 per cent of the tonnage while, from Massachusetts, another producer estimates that private building will take 80 per cent of the tonnage, to mention the extremes.

It is just as impossible to summarize the proportions of volume to be used for highway construction, resi-

dential or industrial building for the same reasons. Estimates of volume of sand and gravel to go into highway construction in 1947 definitely do fall far below normal. The highest percentage reported was 15 per cent and the average was approximately 10 per cent. Allocation for industrial construction ranged from 10 to 30 per cent, probably averaging 25 per cent. Residential construction estimates averaged 35-40 per cent with a high of 65 per cent for one company.

A shift in emphasis toward more public works volume was predicted in some instances and, in locations where increased activity is anticipated in highway construction, etc., an accompanying upward trend in tonnage for residential construction is expected by a number of producers. In some localities, construction planned for 1946 will comprise the important volume in 1947. While residential construction will probably be larger than ever before in 1947, it does not represent a large percentage of the total volume.

Crushed Stone

Crushed stone producers almost unanimously predict that they will have improved business in 1947. Some expressed the view that organized labor must be retarded in order that 1947 conditions be favorable and a few anticipate a slight recession of short duration in the middle of the year. An increase in volume of approximately 25 per cent over 1946 was predicted by several producers, however the majority did not attempt to estimate comparative figures.

In some areas there apparently will be little public works, but offset by private building well above normal levels. Volume of privately-financed construction will be higher comparatively than it was in 1946. A Massachusetts producer anticipates that highway construction will start a comeback in 1947, but diversion of gasoline tax monies is a factor in retarding it. Another producer in Mas-

sachusetts claimed that most volume, for him, will be in highway construction and other forms of public works. The same was reported by an Ohio producer, while a Tennessee producer anticipates a good highway program. Several plants in the Western Plains region expect good volume with County and Township subdivisions of local government. Railroad ballast volume apparently will take up to 40 per cent of the total tonnage at some plants and the general average, from predictions, will be 20 per cent of the total volume, produced for highway construction.

A Missouri producer of crushed limestone remarked significantly:

"We are very much afraid that the advances in prices of finished goods and the advances in labor rates are getting to the point where buying will be seriously restricted, in which instance it is entirely possible that we will see a decided recession in business until such time as prices get in line with ability to buy and labor rates in line with ability to produce at those prices."

According to our comments earlier, on the appraisal of the highway picture by Thomas H. MacDonald, Commissioner of Public Works, Federal Works Agency, there is indication that more conservative bids are starting to be made which may mean that the price trend has been slowed to the point where a reversal may follow.

An editorial published November 8, 1946, in THE WALL STREET JOURNAL clearly points out the detrimental effect of prices that are out of line. In commenting on data gathered by the Securities and Exchange Commission that business enterprises exclusive of farming had planned to spend \$3.4 billion on plant betterments during the final quarter of 1946, as compared to \$3.2 billion dollars in the third quarter, the editorial stated in part:

"It should be noted that these are plans. What happens to the best-laid plans of mice and men is poetically

notorious. Another thing to note is that construction costs have been rising, so that the Commission's dollar figures probably do not mean that the physical volume of plant construction and improvement is rising as much as the figures seem to suggest. . . ." It went on to point out, however, that industrial plant and distribution facilities are growing in spite of all the difficulties of the reconversion period.

A Wisconsin producer summed the situation up as follows:

"The prospects for good business in 1947 seem very bright. We figure our greatest volume will be in road and street maintenance which seems always to get the preference and is badly needed. It is too early to even guess regarding private building and even public works. Private building will depend on costs and our labor contracts will not come up until May 1, 1947. There will be no industrial building until we have a change of labor policy and, most desirable, a change in administration. Small business must be given an opportunity to get out of the habit of thinking only a day ahead, a policy which this government has forced upon them."

This matter of price and uncertainty in supply on long-time construction projects is having a bearing on types of construction approved, which conceivably might have bearing on future construction trends. The State of Missouri, for example, in completing a 1946 highway program of about \$15,000,000, due to simplification of construction specification requirements and removal of much uncertainty in bidding, recently had experienced close agreement between bids submitted and engineers' estimates. Earlier in 1946, a large percentage of bids were rejected on price.

Low cost, simplified roads are coming into favor in Missouri. Typical of a type which will be extensively constructed in the future in that state is a 15 mile stretch of rolled-stone base with asphalt seal recently under construction near New Haven, Mo.

This construction (*Engineering News-Record*, November, 1946) is applicable where grade and alignment are satisfactory and an old road, with some form of gravel surfacing and ample supporting ability as a sub-base is available. It consists of applying two 3-in. layers of compacted crushed stone, sealed with a 200- to 250-penetration asphalt and surfaced with a coating of limestone chips or pea gravel. These roads are similar in construction to water-bound macadam roads. Crushed stone is 100 per cent minus 1½-in., 85 per cent minus ¾-in., and 15-35 per cent through a No. 40 screen. No detours are required in this type of construction. Cost is three times that for conventional clay-gravel roads with asphalt seal, and one-half that for portland cement-concrete pavement.



Showing tractor equipped with dozer cleaning up after a blast at Rolesville quarry of Bryan Rock & Sand Co.

For widening and resurfacing narrow rigid pavement in Missouri, 9-in. of rolled-stone base, in three 3-in. layers, is being installed on each side of pavements. The top of the pavement widening is built level with the old pavement and the entire surface is covered with a 2½-3-in. layer of asphaltic concrete.

Lime and Other Products

Much the same comment on business conditions was received from producers of other rock products. From the Woodville, Ohio, district, famous for the quality of its finishing lime, a producer, in reporting very excellent business prospects for 1947, said that for the first time in ten years private building will require 80 per cent of the production. Another Ohio producer, believing that 1947 volume will equal that for 1946, expects demand to continue to exceed supply. In his opinion, public works and industrial building should not compete for construction materials until residential demands are more nearly satisfied. Opinion is that residential building will soon be progressing at a greatly accelerated pace and industrial building is on the verge of starting up in earnest.

An Alabama producer of chemical lime, in emphasizing the great demands, said, "We have orders booked for the next two years with paper mills for crushed lime from ½- to 1½-in. size and our plant is booked to capacity for all the hydrated lime we can manufacture including 1-lb. and 3-lb. packages of 'household lime.'"

A midwestern manufacturer of lime, believing there is great opportunity in the industry, asked, "What can be done to provide the next generation of managers, foremen, etc? There are more opportunities in our business now than ever before for ambitious men who will learn and work—much better and more than the opportunities the present managers had. What happened in service that makes these young men shun work and responsibility?"

What will be the principal handicaps to operation in a boom year, as you see them now?

The portland cement industry, and all other branches of the rock products industry are beset with handicaps to present operation (what industry isn't?) and which threaten their preparedness to meet 1947 demands. Low productivity of labor; strikes and subsequent enhanced shortages of repairs, machinery and supplies, and shortage of railroad cars top the list of handicaps in the cement industry.

Typical of comments from cement company executives are the following:

"The present cockeyed belief of labor is that it can increase its buying power by reducing its already low effort to produce goods and for higher pay. Demand without supply cannot



Trend toward truck haulage and primary crushing in the quarry is shown at the Winston-Salem plant of Piedmont Quarries Co.

be satisfied however high wage rates may go. It appears that labor must learn some basic economic laws the hard way—for all of us.

"It is by no means clear that 1947 will be a 'boom' year. The principal handicaps to operation in 1947 will be those now existing, such as shortage of cars, labor troubles and difficulties in securing repair parts and new equipment. We are hopeful that all these factors will show improvement as the year progresses.

"A full production schedule in 1947 undoubtedly will encounter serious obstacles on account of shortages of repair parts and machinery replacements. The past few years have drained the stores of many items and have necessitated the use of inferior and less durable materials. Furthermore, it is questionable if we can count on shipments of some necessary raw materials in the quantities as needed."

Sand and gravel producers also stress the same handicaps, there being no way to segregate which specific ones are most serious other than the number of times each was mentioned. Labor, both from the standpoint of unproductivity and lack of experience, was one of the foremost, but much concern was expressed over shortages and delays in securing repair parts, equipment and supplies, and high prices were mentioned often. The shortage of car supply and shortage of cement are handicapping the industry, both in sand and gravel production and in producing ready-mixed concrete.

Sufficient equipment and materials probably will not be available to produce for a boom year, according to some producers. Belting and repair items for dredges, such as screen bearings and bucket chains were mentioned specifically as very scarce.

A Mississippi producer sums the situation up, as expressed generally by many, in the following:

"Inefficient high priced labor and lack of maintenance items. It is labor's turn now to contribute something for the good of the country. Semi-skilled and common labor now are producing only about 60 per cent of their abilities and it may take a 'hard winter' to correct. Manufacturers are too busy bringing out new gadgets to supply operators with necessary old line repairs and operating items. It is hard to operate a sand and gravel plant efficiently if it takes six to eight months to get needed repair parts. Plant scrap piles are about depleted and new parts are needed quickly."

Transportation's importance is emphasized by another southern producer, who said in part:

"... It seems to us that the railroads have been asked to carry on a tremendous transportation job but have not been allowed to buy steel, lumber and materials to keep their equipment in shape. We are now realizing that transportation is the prime element of industry. Top-notch transportation won the war and it will soon bring industry back to pre-war conditions.

"We can see nothing wrong with industry that work won't cure. If each industry works, it will supply what the allied industries need to work with and shortages will disappear overnight. The sand and gravel industry could 'go' if it had the cars, the repair parts and machinery; the railroads could furnish cars if they had the materials with which to build new cars; and repair parts suppliers could supply repair parts if they had the steel and work. . . .

"The sand and gravel industry in this area is doing allright in a curtailed way. None are down-hearted but many are disgusted. Recent elections may or may not smooth things out but at least there is a good opportunity for a new bunch to make good and we are looking ahead hopefully."

Crushed stone producers and other classifications emphasize the same handicaps that prevail in the sand and gravel industry with a few more added. Those manufacturing rock wool are having difficulty in securing paper cartons and complain of excessive prices of necessary chemicals. In a few instances, it is believed that the shortage of supplies and maintenance materials is improving. High prices for residential building and the long delays in securing trucks and repair parts are retarding recovery. In the words of an engineer, the industry is "trying to do too much with too little."

A crushed stone producer in South Carolina sums conditions up, as expressed by many others, in the following:

"Judging from observation and inquiry, I am of the opinion that our problems are about average. Any expansion or rehabilitation program now in process is naturally retarded. Even so-called 'normal operations' are affected by scarcity of materials and supplies (particularly structural steel and reinforcing steel). I believe by the middle of 1947 the situation will begin to ease up on availability of materials and *maybe* prices. . . ."

A consulting engineer in the non-metallic minerals industry on the West Coast, observing handicaps from the mechanical and processing point of view, wrote:

Engineering demands are:

"1. Plant arrangement and rehabilitation are concerned with making as much of the plant as possible operative on a five day per week basis, calling for storage and mechanical facilities to accomplish that purpose.

"2. Maximum mechanization to eliminate labor.

"3. Increase in unit production.

"4. Maximum fuel economy.

"From an operator's and engineering point of view, I believe one of the industry's handicaps is the increased cost of overhead. Accounting, government forms and reports and legal vigilance to guard against liabilities constitute an increasingly cumbersome and inefficient department. Engineering and technical developments in medium and small companies are considered a regrettable expense."

How do prices compare with 1940 standards?

Prices of portland cement have not increased nearly in proportion to the various elements that constitute cost of manufacture. Cement prices were listed in the August, 1946, issue of BUSINESS EXECUTIVE as 114 per cent of the 1939 level, representing the lowest increase of any construction material. One concern reported that prices have remained at the 1940 level despite the fact that prices on purchased materials had increased 35 to 50 per cent. Another company had a 13 per cent higher price level than in 1940, but reported that production cost had increased 53 per cent. Labor cost had increased 75 per cent per bbl. and coal by 74 per cent per ton.

Current prices for sand and gravel average approximately 10 per cent over 1940 prices according to a tabulation of comparative figures, very modest as compared to increased cost of doing business. The maximum increase noted was 22 per cent, but labor had increased 40 per cent and machinery supplies by 50 per cent for that concern. In another case, repair costs had increased 100 per cent, labor 100 per cent and equipment 50 per cent. An Oregon producer stated that aggregate prices have been increased

20 per cent but blacktop pavement prices (evidently a byproduct) have remained unchanged.

Crushed stone prices and those for other rock products have increased approximately the same percentage as for sand and gravel since 1940. One producer (Kansas) actually is selling crushed stone at a lower price than prevailed in 1940. In some cases, higher delivered prices prevail on long hauls due to increased cost of delivery. In California a producer reported a price level 8 to 12 per cent over 1940 standards since decontrol, where prices had been frozen at eight per cent over 1940 prices. One lime producer reported a current price level of 110 per cent of 1933 prices, which were the prices as frozen by O.P.A.

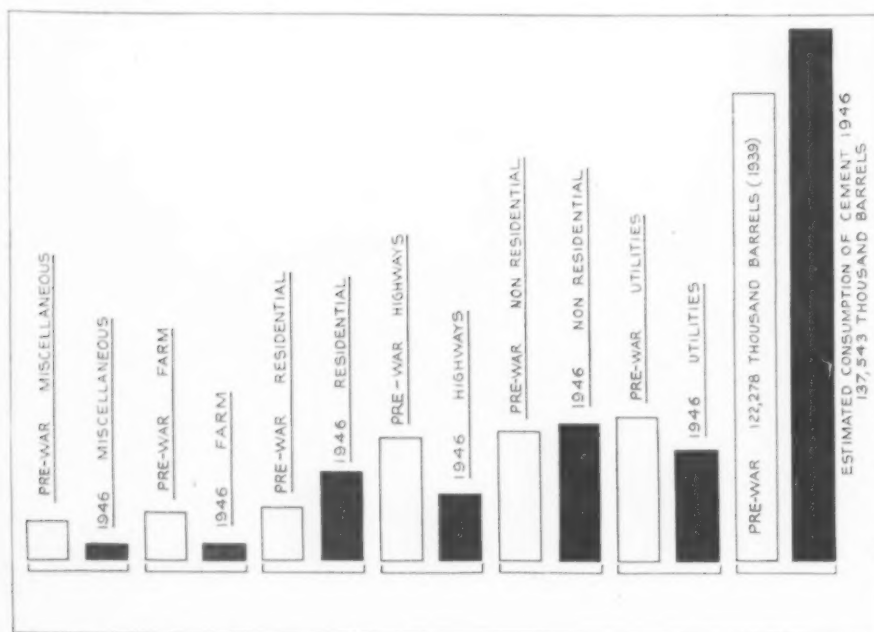
What fraction of total unit cost of your product is represented by labor (exclusive of executives)? How does this ratio compare with 1940?

There were insufficient data available to arrive at a figure for labor in the portland cement industry. However, two of the larger, well-managed concerns reported 36.74 per cent and 38.4 per cent for 1940 as compared to 39.97 per cent and 37.5 per cent in 1946 respectively. The figure for the latter company was 44.04 per cent in 1945, a year of low divisor. One company reported 60 per cent for 1946 and another 75 per cent. The latter concern expects to trim the labor cost percentage by one-third by a modernization program.

Evidently producers of sand and gravel, crushed stone, lime and other rock products are keeping close check of the trend of wages as it affects unit costs, for sufficient number of companies submitted figures from which comparisons could be made. According to returns, labor represented 44.8 per cent of the total unit cost of production for the sand and gravel industry in 1946 as compared to 31.8 per cent in 1940. The increase is 40.9 per cent. These figures cannot, of course, be taken at their face value for, included in the averages, are high labor plants and those of extremely low labor utilization. Geographical location, too, has a bearing. One plant, for example, in Massachusetts reported that labor's fraction had increased from 8 per cent in 1940 to 11 per cent in 1946, while a West Virginia producer gave figures of 60 per cent and 85 per cent, respectively, and another producer from Michigan claimed that labor is absorbing 80 per cent of unit cost as compared to 60 per cent in 1940. The general average range seems to be between 30 and 50 per cent in 1946 and from one-third to one-half lower in 1940.

Some of the returns served to indicate that the industry can accomplish much toward cost reduction through plant renovation. Those companies, through the installation of modern equipment and labor-saving devices

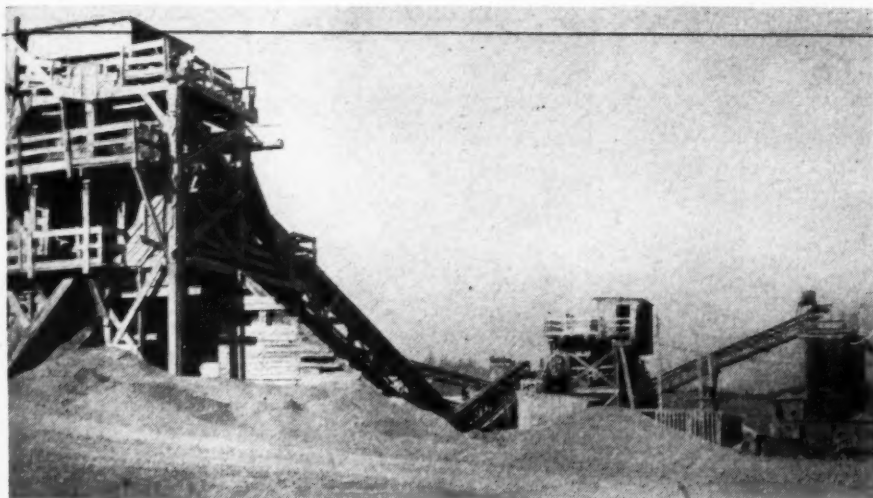
(Continued on page 105)



Estimated cement consumption in 1946 by types of users compared with 1939 to show changing trends throughout and following the war

Crushing

Superior Stone Co., King's Mountain, N. C., plant installs both primary and secondary crushers in quarry, with surge pile over tunnel conveyor belt between quarry and plant



Overall view of main plant at upper ground level. Stone is crushed and screened, to the right, and final screening plant is to the left. The truck loading bin may be seen to the extreme right

Triple Production with Improvements

By H. E. SWANSON

PRODUCTION has been increased 300 per cent at the Superior Stone Co. crushed limestone plant at King's Mountain, N. C., by installing primary crushing and screening equipment in the quarry and belt conveyor transportation to the plant, plus earlier improvements made since 1940. Placed in operation in April, 1946, the new installation is the culmination of the many improvements that have increased production from 100 t.p.h. in 1940, when the plant was first built, to the present capacity of better than 3000 tons per day. The quarry installation alone has resulted in a 130 per cent increase.

Seven years ago, this company began operations at a new deposit, with the intention of working the limestone stratum to a depth of from 45 to 50-ft. before changing the original methods of operation. During this period crushers have been added and well drills for drilling the entire face.

Prior to 1946, stone was hauled by trucks from the quarry up a steep incline to the primary crusher located at ground level. For the new method of operation, the primary was moved into the quarry. Secondary crushing also is handled in the quarry by a new 5½-ft. Symons coarse bowl crusher,

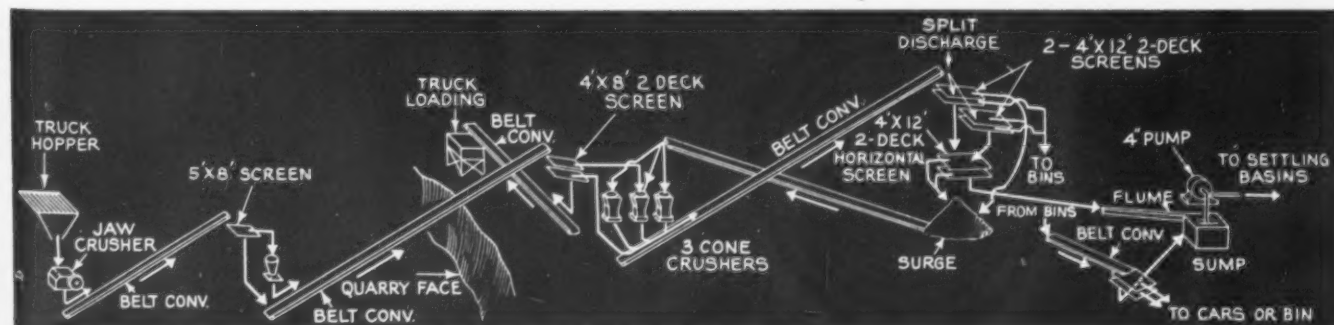
and a 5½-ft. Symons fine bowl crusher was installed at the main plant as a tertiary crusher. Stone, which is now hauled by a fleet of six No. 5 FD



Minus 1½-in. stone, screened out in the main plant, is delivered to truck loading bin by belt conveyor. When bin is full, the chute, at the upper right, directs stone to the stockpile

Euclid rear-dump trucks with a 10-cu. yd. capacity, is dumped into a hopper feeding a 48- x 60-ft. Traylor Bulldog jaw crusher. Throughs discharge to a 42-in. belt conveyor, 90 ft. centers, for delivery to a 5- x 8-ft. Kennedy single-deck vibrating screen with 3½-in. sq. openings. Plus 3½-in. stone scalped at the screen is crushed in the 5½-ft. Symons coarse bowl cone crusher, the throughs joining the minus 3½-in. product from the screen on a 36-in. Continental Gin Co. belt conveyor, 382 ft. centers, for delivery to the main plant. This installation, consisting of the two crushers, scalping screen, and belt conveyors, comprises the equipment which has increased production by providing a more uniform flow with increased crushing capacity.

Stone conveyed to the main plant is screened over a 4- x 8-ft. double-deck Niagara screen equipped with 2½- and 1½-in. sq. openings on the upper and lower decks, respectively. Plus 2½-in. stone is recrushed in the 5½-ft. Symons fine bowl cone crusher; plus 1½- to 2½-in. stone is delivered to a 3-ft. Symons cone crusher, minus 1½-in. stone being sent to the



Showing flow of material through Superior Stone Co. plant with primary crusher located in quarry and intermediate surge pile to prevent plant shut-down due to crusher repairs

truck loading bin by a 24-in. belt conveyor, 65 ft. centers. Throughs of the fine bowl crusher and the 3-ft. cone crusher join the product on the 28-in. belt conveyor which discharges by split feed over a pair of 4- x 12-ft. Tyrock screens placed in parallel. One screen is equipped with 2¼- and ¾-in. sq. openings on the upper and lower decks while the other screen has 1¼- and 9/16-in. sq. openings on the two decks. Lower decks of both screens are equipped with sprays to wash the stone. The products retained on both decks is chuted to a surge pile adjacent to the plant from which it is returned by an 18-in. belt conveyor, 140 ft. centers, to the fine bowl crusher or to 2-ft. and 3-ft. standard Symons cone crushers. Throughs from these crushers are returned in closed circuit to the belt feeding the screens.

The stone retained on the lower decks of the two screens is stored in a radial type storage bin system as sized products, while the stone passing the lower decks is rescreened on a 4- x 12-ft. double-deck Nordberg horizontal screen equipped with sprays on both decks. The upper deck has 9/16-in. sq. openings while the lower deck is equipped with 1/16- x ¾-in. Toncap metal screen cloth. Stone sized on this screen is sent to the radial storage under the screen while the fines passing the lower deck are laundered with the water to a sump where a 4-in. Georgia Iron Works sand pump picks it up and sends it to settling basins where the fines are reclaimed by crane.

Aggregate Blending

Under the storage system is a reclaiming belt on which any desired



Stone is hauled to the primary crusher in 10-cu. yd. dump trucks

blend can be made for delivery to a loading tippie. The 24-in. belt conveyor, 150 ft. centers, discharges over a 42-in. x 8-ft. double-deck Nordberg rinsing screen with ¼-in. sq. openings on the upper deck and 1/16- x ¾-in. Toncap metal screen cloth on the lower deck. The upper deck is used to take part of the load from the lower deck, and products retained on both decks are chuted to cars on the adjacent railroad siding. The fines passing the lower deck are laundered with the rinsing water to the sand pump. The fines reclaimed in the settling basins are sold principally as an aggregate for asphalt work.

Water is provided at the three screening points at a rate of 1000

g.p.m., by two Ingersoll-Rand Moto pumps, a 4-in. and a 5-in.

The stone quarried at this plant is a bluish, brittle limestone with a CaCO_3 content of about 55 per cent. It is drilled 5-ft. below the 86-ft. face to help to eliminate toes in blasting. Holes are drilled by a No. 29T Bucyrus Erie well drill and three 8-in. Cyclone well drills. Dupont 40- and 60-per cent gelatine is dropped into the holes with lowering nets. The blasting is efficient to the point that very little secondary shooting is necessary.

Four shovels are available in the quarry for truck loading, a 50B Bucyrus Erie steam shovel with a 2-cu. yd. bucket; a No. 6 Northwest Diesel



Looking down into quarry where new installation of primary and secondary crushers, screen, and conveyors has increased capacity 130 per cent

with a 1½-cu. yd. bucket; a Model 25 Northwest gasoline powered shovel with a ¾-cu. yd. bucket; and a Model 701 Lima Diesel with a 2-cu. yd. bucket. Trucks are loaded at several spots in the quarry by these shovels to pro-

vide a constant feed to the primary. W. T. Ragland is president of the Superior Stone Co., H. C. Mayes is superintendent of the King's Mountain plant, and W. T. Ragland, Jr., is sales manager.

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and greater production as a result have been able to hold labor's share of unit cost to 1940 levels in spite of sharp wage increases.

Crushed stone producers apparently have had about the same experience. According to returns, the average fraction of total unit cost represented by labor was 43.5 per cent in 1946 as compared to 31.3 per cent in 1940. The increase is 38.9 per cent. In contrast to the sand and gravel producer's estimates, there are very few high or low extremes, with little spread for individual plants over and under the averages calculated for the industry.

Too few figures were available from other divisions of the rock products industry to draw any conclusions other than that labor's fraction in total unit cost has increased. A producer of lime in Alabama stated that labor cost per ton of lime produced now is \$2.40. Another lime manufacturer, in Ohio, covers the overall part of labor in the following:

"Approximately 95 per cent of the cost of our products is labor, figuring all items at source of production. If there is a general increase in wages, it would not only apply from our plant or the manufacturer of our products but it would apply on everything entering into production, such as coal, bags, explosives, repair parts, supplies, etc."

Ready-mixed concrete producers evidently have from 15-20 per cent of unit cost represented in labor.

How is the labor situation in your plants and in your locality? Do you anticipate more plentiful labor supply in 1947?

Availability of labor likely will be a handicap to many producers in 1947, although a good number have plenty of men now or expect to have sufficient numbers in 1947. In certain geographical locations, local industrial development is expected to cause scarcity where there is labor plenty now; the industry as so affected will be forced to compete for labor with new industrial enterprises. Generally speaking, the availability of labor is not and will not be as serious a handicap to the industry as unavailability of equipment and parts and the attendant delay in securing them.

Lack of productivity and scarcity of skilled and semi-skilled workers is of serious concern and, where men show an inclination to do an honest day's work, they often lack experience. A number of companies anticipate better labor conditions when the \$20 per week "unemployment" payments of government money to re-

turned veterans will have been exhausted and men again realize they must work in order to eat. Turnover of labor in its effects on efficiency is serious and also the almost general unreliability and disinterest shown on the part of labor.

Some producers already are finding a much more docile attitude in the workers. While workers are more available to some plants, producers are concerned with the lack of construction workers and the effect on construction activity. Those who anticipate labor difficulties believe that the enactment of legislation limiting the power of labor bosses will be the solution. It was pointed out by one crushed stone producer that labor unions, through their restrictive rules, are particularly a handicap to small plants. Men have to be shifted around in a small organization, he pointed out, and unions obstruct the practice.

Fifty-nine per cent of the replies indicated that the labor situation will be improved in 1947 at least to some extent and the remaining 41 per cent expect that labor, either in quantity or quality, will remain bad in 1947.

An Ohio producer of lime in a labor-shortage locality said:

"There is a shortage of labor in our plant and locality. We will continue to have a shortage until housing facilities can be provided. If the government should decide to lay off approximately two million in their employ who are living off the taxpayer, it might improve the labor supply and enable us to put our other kilns under fire and step up production. What we need now is fewer leaches on the taxpayers and more men in production."

To point out regional influence, we quote from a crushed stone producer in California who said:

"Employment is at a very high level in California. By this season (December) we normally expect to see labor more plentiful due to release of agricultural workers but this year they have been absorbed more promptly than usual. Locally, with the closing of the ship yards, many workers were let out but there are no skilled workers unemployed. In the unskilled class only the less efficient are unemployed. This condition will probably continue into late 1947."

What will be the effect of expected freight rate increases?

General consensus of opinion is that freight rate increases will merely be reflected in higher prices to consumers but certain producers anticipate some dislocation, competitively, to result. One California cement company, in an area where truck haulage of

bulk cement is common, anticipates that higher freight rates will give an advantage to competitors who may be closer to a market area, forcing this concern to absorb the freight increase.

In the aggregates industry there is difference of opinion depending upon the present type of transportation employed and to what extent. Plants set up exclusively for rail haul or which have little or no truck shipments definitely are concerned as to the competitive condition that will develop, while truck-haul plants anticipate no effect. Of course, truck haul plants stand to benefit if anything.

Rail shippers definitely expect that appreciable freight rate increases will encourage the establishment of new competitive plants and have the effect of limiting the marketing radius from their plants. They definitely anticipate that more percentage of tonnage will move by truck and that the door will be opened to the opening of more wayside local pits and the establishment of more portable plants, particularly to serve highway construction.

Little effect is expected on demand, as such, but seriously so in the matter of competition. In some cases it is anticipated that the producer might be forced to absorb part of the freight increase, thus cutting into profits.

One producer of sand and gravel, in considering the effect on costs should a larger percentage of tonnage be hauled by truck from a given plant, commented:

"Increase in freight rates would increase truck hauls which, of course, will add some to plant expense. It is easier to load cars than trucks. Railroads will suffer a loss of 20 per cent in tonnage. Trucks will be plentiful and railroad cars will be short, so possibly from the operator's standpoint it will probably be O.K."

Others believe the effect of increased freight rates, generally, will be to add to the mounting costs that are slowing volume construction including highways; adding to costs that cannot be passed on to the purchaser, at least on all products.

Are you proceeding with plans for plant rehabilitation and what are the principal difficulties to carrying them through? Will necessary equipment and supplies be available?

Labor inefficiency and scarcity and the unavailability of machinery and supplies within any reasonable length of time are the retarding influences in plant rehabilitation but nearly every company that filled out a questionnaire indicated that plant modernization will proceed. The timing of completion of their plant building and rebuilding programs is questionable. Delivery dates even on essential replacements are six months to a year away, according to many.

Conditions in the portland cement industry are fairly well summed up in the following quotations from company executives:

"We have plans for plant rehabilitation which would ordinarily take

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WHERE TO BUY REPAIR PARTS?

Lack of spare parts a serious threat to continued operation. Industry survey shows how producers have solved this problem

SIX-AND-ONE HALF YEARS ago we published an article of the same title as the above. At that time, August 1939, as the reader may remember, the country was in the midst of a "post-National-Recovery Act" slump. The repair parts business of machinery manufacturers serving our industries was very important to them. We made a survey of the field to find out whether the arguments used in favor of purchasing repair parts from the original manufacturer were sound or not. We found there were many sound reasons why a machine user saved both expense and trouble in buying repair and maintenance parts from the manufacturer who had designed and built the particular piece of equipment, even at considerably greater first cost.

Effect of War Scarcities

The war years after 1941 changed the picture. Most of the manufacturers of machinery for the rock products industries were engaged in war equipment manufacture of some kind, and of course they were handicapped in many directions by priorities and limited allotments of such things as ball bearings, steel, alloys, etc., and subsequently by O.P.A. price limits. Unless they could furnish standard repair parts from stock it required much red tape, time and numerous delays to make new parts. Since a large part of the rock products industries were also busy with war contracts, the plight of some, badly in need of vital machine parts, was desperate.

Under the circumstances they sought sources of supply for repair parts that previously they had never even thought of using—including often manufacture in their own shops. What has been the result of this experience? Has it been so satisfactory to rock products operators that they will prefer to obtain repair parts from local foundries and machine shops? With increasing costs of transportation on both raw materials and finished products, the labor difficulties of large manufacturers, the much higher prices all around, probably something could be said in favor of purchasing repair parts made locally in small shops.

With a view to developing the ex-

By NATHAN C. ROCKWOOD

perience of typical producers during war times, and since, in the purchase of repair parts, our editor recently questionnaired several operator friends. The replies are interesting and instructive; and on the whole they verify all the arguments given in our 1939 article for the purchase of genuine repair parts, even though there is considerable evidence that the quality of repair parts made by the original machinery manufacturer deteriorated during the war, for various reasons, more or less obvious. We find purchasers view this deterioration in quality and workmanship sympathetically as part of the general pattern of American industry; but they are emphatic that in this post-war period machinery and equipment manufacturers will have to return to previous service, quality and workmanship, or some present local sources of supply will continue to be used.

Manufacturers' Sales Arguments

So that we can start off on familiar ground, here are some of the points, made in the 1937 article, followed by a review of the war-time experience of operators.

"Very seldom do all parts of a machine become obsolete at the same time; any more than they all wear out at the same time. So in buying repair parts and replacements from the manufacturer of the original part, the purchaser very often gets an improved piece of equipment. Every machinery manufacturer watches the performance records of his product. He is close enough to many of his customers to get an intimate picture of maintenance and repair costs; as a result he is constantly redesigning to eliminate unnecessary expense by the user.

"This redesign, or improvement in design, may take many forms and pass unnoticed by the average purchaser. The pattern may be changed, better and newer metals or alloys used, a better manufacturing technique employed in shaping the part. Machinery manufacturers are constantly studying new alloys and heat

treatments to find ways of improving parts. Their service departments are constantly alert to find weaknesses in the machines that are out. Very frequently a user of machinery gives the manufacturer suggestions which he in turn is able to make available to all users.

* * *

"In considering the matter of price, the purchaser of repair parts should remember that the original manufacturer is normally in a position to make the part as cheap as or cheaper than a local foundry or machine shop. His price may be much higher and still be fair to his customer. He may use superior materials. He may have improved the design. He may have made a large investment in plant and equipment purposely to give his customers quick and efficient service.

"There are some parts of machines that undoubtedly can be obtained locally to advantage; but there is a cost item in making repairs and replacements often ignored. That is the cost of the additional time of the repair gang frequently required in making local castings fit. Drawings and patterns made from worn parts are not likely to make a perfect fit. On the other hand the original manufacturer probably has designed special templates, jigs and fixtures so that his parts are really standard and accurate to scale.

"Moreover, after a little experience with repair parts the manufacturer often purposely designs them to be more readily replaceable. By close cooperation between the user and the manufacturer, the user often gains the advantage of much expert advice on installing repair parts and other advice on operating problems gleaned from contacts with many other users. The service departments of many machinery manufacturers are frequently the best source of expert advice on particularly knotty operating problems.

* * *

"Of course, the repair part business can be and has occasionally been made a racket; at least in the opinion of some purchasing agents; but it should not be assumed that it is a racket simply because the original manufacturer asks a higher price than the local foundry. For example,

it might be a manganese-steel part that is required. There is no general understanding of what constitutes manganese-steel. Reputable manufacturers say it is an alloy of 10 to 16 per cent manganese with 90 to 84 per cent iron and carbon (steel). The local foundry may bid on a 3 or 5 per cent alloy, which has none of the properties of genuine manganese steel.

"Another angle is that many machines and parts are patented and the user or the local foundry may be violating someone's property rights in having the part made. Generally, of course, a manufacturer will overlook such delinquency on the part of an otherwise good customer, but the practice will exempt the manufacturer from legal responsibility given in any performance guarantees. Moreover, the user of a machine who makes a practice of buying repair parts made by others than the original manufacturer can hardly expect the manufacturer to service the machine as he would otherwise be glad to do both for his own reasons and the customer's."

War-Time Experience

The first sour note on the foregoing has been the lack of improved design and materials in repair parts made during the war. Several rock products operators discovered this, and found that repair parts made locally were often no worse and sometimes better than could be obtained from the original manufacturer. Since in many instances patterns had to be made, the locally manufactured repair parts cost more instead of less; and in most instances because of expensive delays, etc., there was no way of comparing war-time repair expense costs with pre-war experience.

Fortunate operators were either well-stocked with repair parts prior to the war, or had enough idle machinery to acquire repair parts from it; also, not a few were able to get all necessary repair parts from manufacturers' stocks. These parts, of course, were pre-war quality and the purchasers were entirely satisfied. Parts that were not available from stock and had to be manufactured to order under war-time conditions were frequently found to be short-lived and generally unsatisfactory, although the local suppliers' second and subsequent orders were sometimes filled with more satisfaction to the purchaser.

On the other hand we have the word of the chief engineer of a Midwest portland cement company that it "has always been the custom to use as much as possible of repair parts wherever they could be obtained; and it has been found in the past that any reputable manufacturer puts out repair parts which are as good as those of the original manufacturer." A crushed-stone company operating several plants in a Mississippi Valley state reports that it has established

a number of sources where it can obtain repair parts, which in many cases are found to be superior to those originally received from the manufacturer of the machines; and that in most cases the prices are lower. It is the opinion of the company's vice-president in charge of operation "that in the future a great many parts will be available and purchasable from outside sources." From the returns as a whole it appears that the experience of these two are exceptions rather than the general experience of the industry.

That the manufacturers have not been able to continue improvements in parts-making is natural, both on account of pre-occupation with war business, and, because mechanical engineers and draftsmen were in short supply throughout recent years. A large producer of aggregates in the Southwest, who has been extremely busy throughout the war years, and since, makes this commentary: "All the repair parts which we have been able to secure during the war period and up to now have been very inferior to those we were able to secure before the war. Generally, repair parts from outside sources have compared favorably with those secured from the machinery manufacturer. From conversation with various producers and contractors, I am of the opinion that generally and almost universally all repair parts have been inferior since 1942 and they continue so. They have been so hard to secure that we have welcomed most anything which will sort of fill up the space or hold the things together, so to speak. Of course, we know what the manufacturers' troubles are, since we have some of our own, and we have been very sympathetic and have not raised too much commotion about inferior parts. It is high time right now, however, for them to return to their pre-war standard."

An East Central States aggregate producer describes a somewhat similar experience: "Our experience with repair parts has been very unsatisfactory whether we secure them from the proper manufacturer or from outside sources. We have found these parts do not have metal that will give the service that the old parts gave. The new ones last approximately one-half to one-third the length of time the old parts did. Furthermore, we find manufacturer's agents, undoubtedly due to war conditions, do not show the interest in the buyer that was formerly shown. Any appointments made by the buyers and the manufacturing concerns are not always kept. Occasionally the buyer is notified, but not always.

"Orders to manufacturers are ignored, and often repeatedly; especially when these orders are for very necessary parts. We have had shovels and cranes out of operation for six months' periods costing us consider-

able money due to the inability of the manufacturer to get the parts to us. However, to be fair on the subject, these manufacturers have been subject to the O.P.A. and their own inability to get proper metal due to strikes.

"Summing up the whole situation, the entire economy of the country has been slowed down to a dangerous extent and unless conditions improve, a fair percentage of business men are beginning to wonder how long we can operate at all. I am confident that the entire difficulty is not the fault of the manufacturer, but that the attitude of some of them could show a decided improvement in their desire to at least give the prospective buyer proper attention. This of course leads us to the new personnel in most all businesses which is considerably below the standard of prewar personnel. Summing it all up, too many people don't seem to care whether they do their job or whether they don't. The sum total is increasing irresponsibility instead of increasing responsibility in the human family."

Will Welcome Return of Real Service

A Midwest aggregate producer with many widespread operations comments along similar lines: "I don't think any producer during the war period and since has been satisfied at all with repair parts he received. Even on new equipment coming out now—or at least it was true six months ago—a good many parts were bad. This seemed to be true of roller bearings and castings in particular. It certainly will be very gratifying when the manufacturers all get back to the point where they can furnish their standards made of good material, to fit the purpose. There is not much of any way to give you an estimate of the difference in cost. There was delay after delay when a new piece of equipment went down, and you put in one of these repair parts and you knew you were going to be faced with a shutdown again very shortly due to their poor quality."

A New England crushed-stone producer gives us a clincher for return of the kind of repair parts service that used to be: "We have been plagued with shortages for several years, and the situation is no better at the present time. We have had to buy so-called 'gip' parts many times and on occasion have had to make our own or have them made locally. Almost without exception machine parts so acquired are inferior to the manufacturer's parts and very often overpriced. We cannot understand why any operator would buy repair parts from other people when they can get them from the factory that made the machine. We hope that we will soon be able to buy entirely from the proper manufacturer and expect a reasonable delivery."

A Western States cement manufacturer expresses much the same sentiments thus: "Without going into detail, it has, of course, been necessary during the war years and since to use a great deal of ingenuity in keeping our plants running. Many of our parts have been made by obscure foundries and small machine shops which never before had made the type of equipment used in our business. On the whole, the performance of such parts has been satisfactory. As a matter of economy it will be a happy day when repair parts can again be ordered by number from the original manufacturer."

Concluding Comments

The producer reader of the foregoing has probably been interested chiefly in seeing how his own experience tallied with that described. He will probably have made a mental note that the contents of this article should be addressed more to the machinery manufacturer than to him-

self. That is indeed the case. As editors and publishers of ROCK PRODUCTS we have always conceived it to be an important part of our obligation to furnish a public market place for the industry—a meeting place of advertiser and reader-producer. That means, naturally, a place for discussion of problems or obstructions to a free flow of commercial intercourse in these industries.

Many of the things our producer friends have told us as a basis for this discussion they would hesitate to discuss directly with manufacturers, yet the manufacturers who are also our friends and advertisers should know the trend of thinking of their customers in this post-war era. Hence, we have very frankly described some of their alleged short-comings, with however, full knowledge that the criticisms do not apply to all, and with full knowledge that, along with their producer customers, we realize the tremendous handicaps they have had to contend with.

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about two years to carry through. At present they may take four years. The chief obstacle is government curtailment of building. If this were lifted (much has been since the election—the editor) there would still be considerable delays in getting necessary materials but this is the lesser hindrance."

"... Contractors fees are high, skilled labor draws the money, it lacks the skill and we must pay overtime to obtain any help. Equipment delays will hurt and we cannot rely on any promises made by either equipment supplier's or contractors. We would have postponed new construction except we must replace a mill worn out during the war."

Rehabilitation Plans

"Plans for rehabilitation of plants are being advanced through the blueprint stage and an effort will be made to proceed with construction of the urgent projects. The present construction difficulties involving materials and labor, and the inability to reliably estimate or control costs, will result in postponement of many projects which hinge on economic considerations.

"Equipment and supplies will not be available in quantity in sufficient time to do anything except to go ahead very slowly. As an example, we have had a small cast iron pulley on order for two months and it isn't known yet when we will receive it. Consequently, we must make it ourselves. It took two months to get a shipment from Philadelphia after the shipment was loaded on the cars."

A lime manufacturer in Ohio commented:

"We have plans ready for improvements and additions and replace-

ments totalling more than the book value of our present plant. We can get most of the equipment promptly and can get the engineering services immediately, but cannot get dependable men to do the work or find the time to dig out the hard-to-get items."

One sand and gravel company reported completion of a \$75,000 plant modernization program after tremendous difficulties but believes worse conditions might have prevailed should he have attempted the program under existing conditions. Others are delaying their programs until the supply and labor conditions are improved and a few indicated that they are postponing plant renovation and building because of "high costs." Others are planning to replace old equipment in 1947 only where absolutely necessary. One sand and gravel company has completed a plant program through manufacturing its equipment needs. Yet, the bulk of companies are going forward and, apparently, intend to press hard for the necessary equipment and supplies.

Tougher Specifications

Among the specific problems encountered, several concerns have extreme difficulty in obtaining timber for construction of bunkers for aggregates. One of the principal difficulties expressed by quite a few aggregate producers is the extent to which trends toward more percentage of the smaller size ranges (at the expense of the larger sizes) will develop. Changes in progress or anticipated, in both Federal and State specifications for aggregates, are handicapping plans.

Every possible effort is being made to make plant layouts and operations highly efficient—using as much labor

replacement equipment as possible—with the thought in mind of eventually having well-paid, skilled, contented workmen who really "get in and pitch," said a west coast crushed stone producer who has observed that poor workmen have seriously affected the efficiency of those in the plant who are trying to accomplish an honest day's work.

What are your main Technical Problems? Will they be in connection with adjustment to changed outlets? Specifically, have you any plant operating problems as yet unsolved?

The answer to these questions more or less followed the pattern of replies to some of our other questions, labor productivity, or rather lack of productivity being an important consideration. Some specific operating and technical problems in need of solution were brought out, but in a general way it was pointed out that the industry always will have operating problems as long as it costs money to produce. More than ever before emphasis will be on securing more product from existing facilities, or attention will be concentrated on new equipment and layout to accomplish the same objective.

Dust control measures (stack) were mentioned specifically by a few cement manufacturers as an objective sought in plant rehabilitation. Some aggregates producers plan mechanization in order to combat the threat of fly-by-night new competition. River sand producers, in some localities, continue to be troubled by specifications for concrete sand that require a definite percentage of minus 100-mesh particles.

One sand and gravel company expressed the view that a difficult problem was to increase output without too much equipment installation at one time, without overloading the old equipment or underloading the new so as to have an unbalanced operation. We presume he was referring to piece-meal installation necessitated by shortages.

Several small producers of crushed stone mentioned as a main problem successful operation in wet weather during the Winter months, referring to the screening of wet limestone. That problem has been successfully solved by resort to mining, the addition of water for wet screening and by other means, but suggests that screen manufacturers make recommendations.

Specification changes and changes in the requirements for the future are often intangible, but nevertheless practical considerations that enter the picture of rehabilitation at this time. Another problem, and one that constantly has been with the crushed stone industry—improved methods of clay removal from aggregates—is occupying the attention of certain producers. One lime manufacturer said that the unavailability of wood in quantity will force him to change to oil as fuel for burning lime.

The Problem of Proportioning Portland Cement Raw Mixtures

Part I — A General View of the Problem

By L. A. DAHL*

This series of articles on raw mixture control will cover mathematical studies, application to typical processes, and direct control of potential composition

PORTLAND CEMENT CLINKER is manufactured by heating a finely ground mixture of calcareous and argillaceous materials in a kiln at a temperature of partial fusion. This process is generally referred to as "burning." The mixture of raw materials is the *raw mix*. There is a considerable variety of materials which may be used. For example, the calcareous material may be limestone, oyster shells or marl. The argillaceous material may be shale or clay. In some districts cement rock is used. This rock contains both calcareous and argillaceous constituents in varying proportions, but in approximately the proportions required in the raw mix. The principles involved in proportioning the raw materials are the same for these various materials. It will therefore be sufficient to refer to the materials as limestone and shale, with the understanding that the principles and methods discussed are applicable to any of the raw materials in common use.

Small changes in proportions of limestone and shale have large effects upon the "burnability" of the raw mix; that is, upon the ease with which the mix can be burned to a satisfactory clinker. From the standpoint of production, and economy of fuel, accurate control of composition is important, because periods of easy burning do not compensate for loss in production and high fuel consumption during periods of hard burning. From the standpoint of quality of the product, it may be stated that the character of the clinker is influenced both by composition and the heat treatment applied to the mix in the kiln. Variations in composition affect burnability, and therefore affect kiln operation. The combination of varying composition and the resulting variation in kiln operation interferes with the attainment of uniformity in the product. It is evident from these considerations that control of composition of the raw mix is a critical operation, requiring that the proportions of limestone and shale, or equivalent materials, be accurately controlled.

Since the early days of the industry it has been the practice to subject the raw mix to certain rapid chemical tests, to determine whether the mix is correctly proportioned or to indicate

needed changes in proportions. With such control tests available, it is not necessary to proportion the raw materials precisely in a single operation. For example, in one type of operation the limestone and shale may be proportioned roughly to form preliminary raw mixtures, some with too much limestone and some with too little. These preliminary mixtures are then combined in suitable proportions to form the final raw mix fed to the kilns. Since the preliminary mixtures are fairly close to the desired composition, the degree of accuracy required in the second proportioning operation is much less than that which would be required if the raw materials were proportioned in a single operation. This procedure, and other procedures designed to eliminate the necessity of extremely precise weighing of raw materials, would be impossible without the control tests.

Function of Rapid Control Tests

Rapid control tests have an important place in all methods of proportioning raw mixtures. To illustrate their function in a simple manner, let us assume that a plant has raw materials of the compositions indicated in the following table, and that they do not vary in composition. We will suppose that the mixture in the last column, made with 83.0 per cent lime-

stone and 17.0 per cent shale, has been found to be satisfactory, and that it is proposed to make this mixture continuously.

It would be possible, of course, to make the desired mix continuously by precise weighing operations. However, because of the nature of the raw materials and the large quantities to be handled, it is difficult to maintain a high degree of precision in the weighing equipment. We seek precision, but must secure it in some other way. Starting without a knowledge of methods now in use, we might observe the first item in the analyses, the SiO_2 content. The desired mix contains 13.71 per cent SiO_2 . It can be seen from the values for the raw materials that the SiO_2 content will be greater than 13.71 per cent if more than 17.0 per cent shale is present and that it will be less than 13.71 if less than 17.0 per cent shale is present. It would consequently be possible, even with crude weighing equipment, to obtain the desired composition by checking the SiO_2 content at various stages of the operation, continually working toward the required SiO_2 content. One advantage of selecting SiO_2 for this procedure would be that changes in SiO_2 content will clearly indicate corresponding changes in proportions of limestone and shale, because of the wide difference in SiO_2 content of the limestone and shale. Referring to the analyses, we see that there are other constituents which could be chosen for the control test instead of SiO_2 . The CaO content, ignition loss and carbonate content of the limestone and shale are far enough apart to offer possibilities. A choice is possible, and the basis for such a choice is the time required for the determination, and the simplicity of the method.

It should be understood from the foregoing discussion that the control test used in the proportioning operation makes it possible to secure accurate control of proportions with weighing equipment which is not capable of securing precise proportioning in a single operation. In fact, it is possible to secure accurate proportions by weight without any weighing operations in the plant. However, it cannot be said that precision in weighing is completely eliminated. It is necessary to weigh reagents when standardizing

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RAW MATERIALS

| | Limestone A | Shale | Mix No. 1 |
|-------------------------------|-------------|-------|-----------|
| SiO_2 | 3.57 | 63.24 | 13.71 |
| Al_2O_3 | 1.53 | 15.78 | 3.95 |
| Fe_2O_3 | 1.64 | 5.32 | 2.27 |
| CaO | 49.71 | 2.12 | 41.62 |
| MgO | 1.20 | 1.12 | 1.19 |
| Ignition loss | 42.35 | 12.42 | 37.26 |
| Carbonates | 91.70 | 6.56 | 77.24 |

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Rockwool

Making "Wool" By a Continuous Automatic Process

Modern rock wool plant of Federal Portland Cement Co. designed for efficient material handling, ventilation and storage facilities

By BROR NORDBERG

ADVANCED TECHNOLOGY and the latest in improved machinery for the manufacture of mineral wool have been incorporated by the Federal Portland Cement Co., Inc., Buffalo, N. Y., into a new plant that represents advanced practice, particularly in methods to manufacture mineral wool batts. Federal's Insulation Division started the production of batts by a continuous and automatic process October 15, 1946, having manufactured loose wool and granulated wool for approximately two years at the same location.

Located on the shore of Lake Erie adjacent to the parent portland cement plant, the mineral wool plant has rail and trucking facilities and is housed in a 85- x 200-ft. fireproof building of concrete masonry and steel construction that, in itself, far out-

strips plant standards for the industry. Material handling, ventilation, storage and the efficient interrelation of manufacturing and related processing were all designed into this plant.

Slag and coke are the basic raw materials for wool manufacture and the vertical cupola process of melting and blowing is employed. Essentially, there are two parallel production lines. One cupola is for the manufacture of loose wool and granulated wool, while a second, of identical size and capacity, blows wool fibers into a collecting chamber for the manufacture of batts. Capacity of the plant is potentially two-and-one-half tons of wool per hour. The cupolas are the conventional, water-jacketed, vertical blast furnace type, located side by side

on a common firing floor, so that the plant could conveniently be expanded sideways.

Raw Materials

Air cooled blast furnace slag sized from 1½ to 4 in., without any additive raw materials, comprises the cupola feed, in alternate layers with 3½-4½-in. high grade foundry coke. Overhead bins for slag and coke have capacity sufficient for 24-hr. operation. Both materials are weighed on a hopper scale, in the approximate fuel ratio of 5.6:1, a skip hoist transferring to an overhead reversible belt conveyor charging into the top of either cupola. An average charge of slag plus coke weighs 1500 lb.

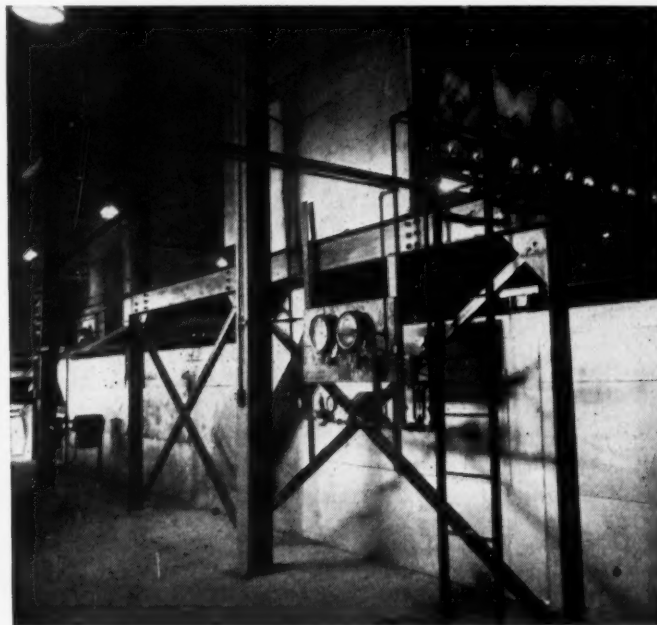
Fusion-Blowing

Each cupola is 48-in. inside diameter and is water-jacketed from the bottom of the fusion zone to a height of 8 ft. Fusion takes place in a zone 42 in. high, starting at a level 8 in. below tuyeres through which induced draft is introduced to burn the coke. Individual induced draft fans serve each cupola. High pressure steam, at 90 p.s.i., for fiberizing the melt is supplied both cupolas by a stoker-fired boiler rated at 125 p.s.i. and 150-hp. capacity. Heat taken up by the circulating cooling water is recovered, part of the steam being utilized as preheated feed water to the boiler.

The only difference in the two cupolas is in the number of streams of melt that are blown into fibers by the high pressure steam. Water-cooled divider plates split the stream flowing from one cupola into six streams of equal size, each subjected to a blast of steam through V-orifice blow caps. The other cupola, for batt manufac-



Batt production line taken from packing end. Note crosscut saw and on left, background, chute for packing loose wool. Workers to the left are compressing resilient batts into boxes



Left: Oven to set binder, showing arrangement to bag loose wool in foreground. Right: Close-up of oil-fired oven where binder is set or "cured" as blanket of wool passes through

ture, has four streams. Production of wool from each cupola is about the same. This matter of the practicable optimum number of stream divisions, a subject of industry-wide research, is under careful consideration.

Under present operating conditions, consumption of blowing steam for the long, uniform fiber produced is approximately one pound for each pound of slag melted per hour, or 3000 lb. per hour per cupola. The control of induced draft, important for its effect on viscosity of the melt and the fusion rate, is regulated at the fan in each case. Consumption of air is 160 c.f.m. per lb. of coke burned per hour, introduced into the cupola through seven tuyeres equally spaced radially.

Cooling water at 150 deg. F. is circulated by pump through the water jacket of each cupola at the rate of 175 g.p.m., returning to a sump at 200 deg. F. There is an excess of heated water over the boiler requirement (for 90 p.s.i. steam at 340 deg. F.), requiring the addition of makeup cold water to the balance for the recirculation through the cupola water jackets.

Temperature of the melt flowing from the cupolas is 2600 deg. F., which reduces to 2450 deg. F. at the blow caps. Temperature being an important factor for its influence on viscosity of the melt, it is checked at regular intervals by portable optical pyrometers. Observation ports and poke holes are located at each of the seven tuyeres. Normal practice is to charge 1500 lb. of slag plus coke twice each hour into each cupola and to regulate the speed of the conveyor inside each collecting chamber to conform with the highest output of the cupolas that can be maintained.

Annealing oil, for waterproofing and to alloy dust, is coated over the fibers from which granulated wool

and loose wool are to be processed. Application is at the rate of $\frac{3}{4}$ of 1 per cent by weight, the incandescent fibers being blown through an atomized stream of oil in front of the blow cap.

Loose-Granulated Wool

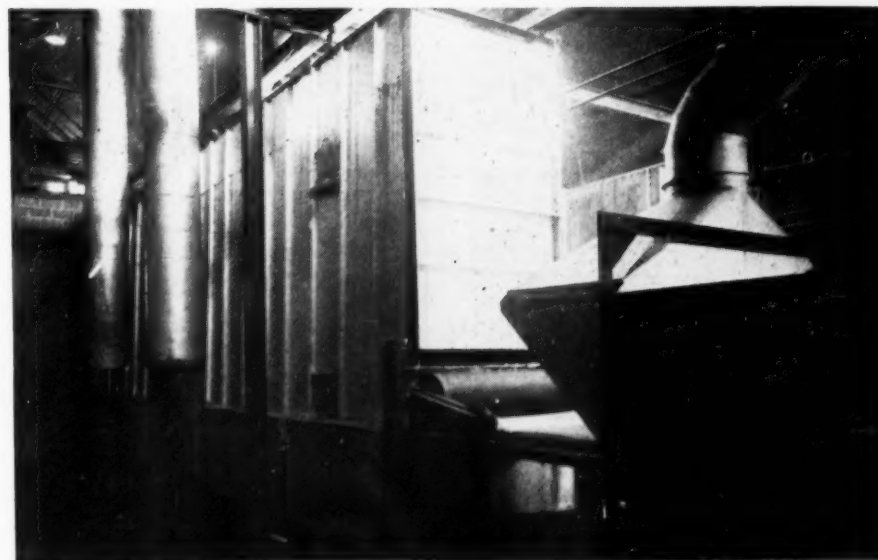
Fiberized wool from the 6-stream cupola is blown into its collecting chamber at a rate requiring that the continuous conveyor, 60 in. wide by 33 ft., on which it comes to rest, travel at seven lineal ft. per minute. The conveyor has high temperature steel woven wire mesh, carrying the wool blanket out of the collecting chamber for the picking and shredding processes.

Pre-shedding takes place at the end of this conveyor, where the blanket

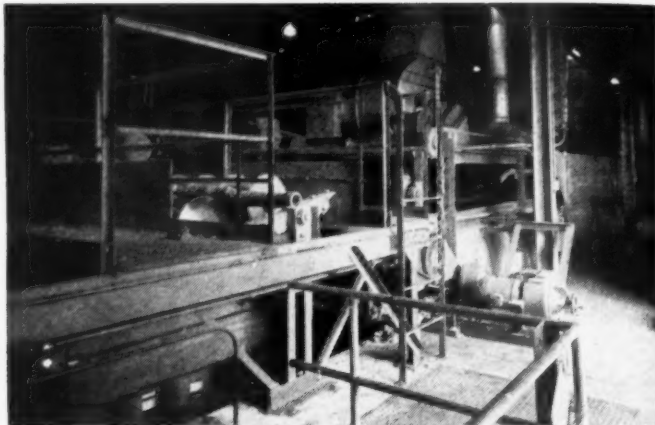
of wool is passed under a picker, consisting essentially of a horizontal transverse shaft with a series of protruding arms. An inclined cleated belt conveyor followed by two overhead belt conveyors in succession elevates the wool to the shredder. A chute and downspout, where conveyor No. 2 transfers to conveyor No. 3, are provided for bagging loose wool on the main floor.

A rotary cage with numerable extending teeth, much like a hammer mill, shreds the wool into $\frac{1}{2}$ -in. pieces. Shot and fiber loss are screened through 7-mesh cloth on a revolving screen which also serves to pelletize the wool.

Granulated wool discharges into a chute with separating plate, in circuit with a cyclone separator which,



Collecting chamber on batt line has "floating" sides to settle wool on conveyor



Left: Workers loading batts into cartons from continuous conveyor. Oven to set binder and cooler fan visible in background. Right: Continuous batt conveyor showing longitudinal saw and close-up of cooling fan

while serving as a collecting bin, also separates further, shot and clinker or slugs of coke or slag. The product is packed, 40 lb. by weight, in 50-lb., double-wall stock paper bags. Reject granulated wool is bagged for disposal or for sale at great discount.

Dust, fumes and steam are effectively dispersed from the plant through a downdraft system in the wool collection chamber. For the purpose, a ventilating fan of 40,000 c.f.m. capacity receives its suction through an intake box spanning the complete underside of the conveyor inside the collecting chamber.

Batt Manufacture

Insulating batts are manufactured over a continuous and automatic production line of entirely new equipment. The process consists of melting and blowing of fibers into a collecting chamber, the coating of the fibers with plastic binder, heat treating to cure or "set" the binder, cooling, the application of paper backing, cutting and packaging.

An uninterrupted flow through these processes is effected over a single, endless, wire mesh conveyor on 120-ft. centers, of variable speed that is geared to the output of the cupola.

The conveyor in this case is 61 in. wide, allowing 1 in. for trim in cutting

four 15-in. wide strips longitudinally. Its length comprises 35 ft. inside the collecting chamber, an 8-ft. section between the forming roll and oven, a

is reset for changes in batt thickness and may be increased or slowed with changes in cupola output in order to maintain uniform density of the product.

Resiliency of the batts is attained by application of a waterproof binder of the "thermo-setting" type. The binder, predominantly of oils and resins, is uniformly dispersed at the blow caps before the cupola, as a water-emulsion, to coat the individual fibers as they are being blown into the collecting chamber. Applied in the ratio of 2½ per cent by weight of wool, through a positive gear pump, the binder is of the class that must be kept moist until the blanket of wool is withdrawn from the blow room, so that the blanket may be handled and shaped into desired thickness. Then the binder is "set" through the application of heat. The result is a batt that is not only resilient, but with increased strength and resistance to moisture and high temperature.

In its moist state the binder is gummy, with the result that coated fibers of wool would have a tendency to stick to the steel sides of the conventional, rigid collecting chamber. To prevent buildup on the inner sides of the chamber and to insure uniform full batt thickness along with reduced trim, the sides of the chamber are

(Continued on page 116)

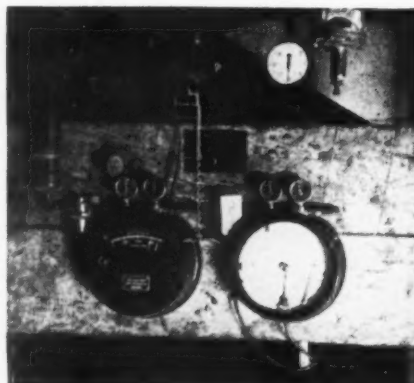


S. J. Drake, superintendent, rock wool division

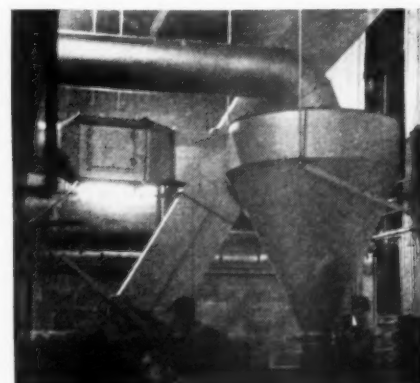
56-ft. oven section, 15 ft. through the cooling section, and the balance for cutting. Speed range is from 7 to 21 lineal ft. per minute, effected through a Reeves variable speed drive. Speed



Arrangement for weigh-batching coke and slag; charging elevator to the right



Instrument controls for oven to "set" batts



Bagging granulated wool from cyclone

LABOR RELATION TRENDS

Right of Free Speech by Employers

By NATHAN C. ROCKWOOD

SINCE THE CHIEF PURPOSE of the N.L.R.A. was to prevent any interference by the employer with the right of employees to bargain collectively, which naturally meant the right to form a union, the National Labor Relations Board has attempted to construe narrowly the employer's right even to express an opinion regarding a union in which some of his employees might have an interest—provided, of course, that his opinion could be interpreted as "hostile." There are numerous rulings of the Board holding that the employer had used "unfair labor practices" in expressing such an opinion prior to an election of union representatives or by expressing in acts that employees need not join a union to receive an increase in pay, or paid vacations, etc.

Notwithstanding the guarantee of free speech in the First Amendment to the Constitution of the United States, the courts have held that the National Labor Relations Board had the power to decide in specific cases whether the employer exceeded this constitutional right; or as it is now sometimes referred to "privilege." Gradually, probably because such a right has always been considered one of the most sacred of our individual liberties, the Board eased off and its more recent rulings became a little more liberal. However, it ruled in the Clark Bros. Co. case No. 3-C-775, August, 1946, that the employer used coercion by merely making his employees listen to a speech, on the company's time, one hour prior to a union organization meeting.

The speech was described in the Board's ruling as anti-union, although it was not contended that it contained any threats or other attempted coercion, as such. However, the words of the Board's decision were: "The law may and does prevent such use of force (compelling employees to listen) without denying the right to speak. Similarly we must perform our function of protecting employees against that use of the employer's economic power, which is inherent in his ability to control their actions during working hours. Such use of his power is an independent circumstance, the nature and effect of which are to be independently appraised." Thus was born the theory of "free" and "captive" audiences.

It remained for Montgomery Ward & Co. (Sewell L. Avery, also of U. S. Gypsum Co. fame) to fight a similar case through to a United States Court of Appeals (Eighth Circuit, St. Louis, Mo.). The court's decision was rendered October 23, 1946, and should clip the wings of the National Labor

Relations Board to some extent, at least. The Board held that the company had violated the N.L.R.A., among other things, by a speech made by the company's manager of labor relations. The case grew out of an attempt of the C.I.O. to organize the company's Kansas City plant. Prior to the election ordered by the National Labor Relations Board, the company's manager of labor relations summoned the employees in small groups to come and listen to his speech. The election was held and the union won the retail store employees but lost the mail order unit employees.

The burden of the manager's speech was an answer to many charges published by the union, in a periodic bulletin, that the company "is unpatriotic, that it cheats the employees, maintains rotten labor conditions, engages in corrupt dealings, violates the law," etc. and etc. To stop these libelous and false accusations, the manager of labor relations told the various groups of employees, in his speeches to them, that the company had filed suit in the courts at Chicago. The court at St. Louis quoted some of the false and malicious statements made in the union bulletins, in its decision, to show that the company spokesman was merely "meeting and joining the issue before its own employees with those who were assailing it." The N.L.R.B. had paid no attention to the union's scurrilous attacks, having assumed apparently that the union was especially privileged in its right of freedom of speech.

Compulsory Attendance Not a Factor

The court held that the right of free speech guaranteed by the First Amendment to the Constitution "is not limited to any class and is not denied an employer by the terms of the National Labor Relations Act. It is only the abuse of that right in attempting to coerce employees that is forbidden by the Act." It was argued by the National Labor Relations Board, according to its rulings in previous cases, that compulsory attendance of the employees at the meetings was a species of coercion.

The court ruled: "Certainly the employers have the right to meet their employees for discussion and presentation of matters of policy of mutual interest. . . . In asking its employees to attend a meeting on company time, at which affairs of mutual interest to the company and to the employees were to be discussed, the company was employing a convenient means of communicating with its employees. The employees were paid for attend-

ing and were not inconvenienced in the least. If they were influenced against their will by the arguments presented, this was a legitimate consequence of free speech and presumably is one of its purposes. Free speech is not limited to ineffective speech."

The N.R.L.B. argued that the speech of the company's manager of labor relations discouraged union membership because he told of the action for injunction and damages at Chicago against the union to stop publishing the false accusations, but the court held that this statement of fact "could not be distorted into an ominous threat of criminal liability against the workers." Even the manager's expressed opposition to a closed shop was in effect a threat, according to the arguments of the National Labor Relations Board. However, the court held that there is no mention in the Act in regard to closed shop "except to the effect that nothing in the Act should preclude an employer from making a closed-shop contract with a union."

Must Stick to Facts

The Montgomery Ward & Co. decision cited above assures employers the right to give their employees their opinion about unions, provided they stick to facts and honest opinions necessary to combat union propaganda. It does not permit any more genuine coercion than previously. A decision of the United States Circuit Court of Appeals, Sixth Circuit, Cincinnati, Ohio, October 16, 1946, in the C. D. Beck & Co. case, makes that distinction clear. The decision is the more interesting because this is the same court that passed on the famous Ford Motor Co. case (one of the earliest), holding that the employer has the right not only generally to express his labor views, but to distribute to his employees a pamphlet embodying these views.

In the present case the manager of the company told his employees if they joined the union they would be "sticking their necks out," and directed them to return from their union meeting with "a changed mind." These were adjudged "to be an unfair labor practice under the N.L.R.A. and not protected by the free speech provision of the First Amendment to the Federal Constitution, since the reasonable inference from such statements is that the manager intended a threat of discharge of and discrimination against employees."

The court summed up previous decisions on this point thus: "Decisions on the right of freedom of speech of the employer, in making statements disparaging of the union, have always held such statements to be justified only if the expressions in controversy are noncoercive. If they are couched in such phrases, or attended by such circumstances that they tend to exercise undue influence and coercion upon the employees, the expressions of opinion are not protected."



Left: Primary jaw crusher station where 18-ton pay-load trucks dump to grizzly feeder supplying uniform feed to crusher. Right: Split discharge at end of conveyor which takes primary crusher product, sends half the load to main plant and the other half to hopper feeding portable plant

PORTABLE PAYS BIG DIVIDENDS

Taking Excess Load to Main Plant

By H. E. SWANSON

Grove Stone and Sand Co. doubles capacity and plans call for additional improvements to meet heavy demand

WITH INCREASING DEMANDS for construction aggregates, producers are taxed beyond capacity to provide materials at normal production rates, necessitating the installation of new equipment. Grove Stone and Sand Co., Swannanoa, N. C., already has doubled capacity and future plans call for the addition of more equipment to triple capacity.

Replacement of a small primary crusher by a 24- x 36-in. Pioneer jaw crusher provided a feed to the main plant in excess of the washing and screening equipment capacity. To remedy this situation, additional equipment will be added this winter. At present, a portable plant has been installed to take part of the feed from the primary crusher, thus assisting in handling the large amount of material that can be processed at the primary station. When the main plant has been completed with all of its new additions, the portable plant will still be maintained, since the feed from the primary station will be large enough to supply material to both plants.

Located in the foothills of the range of mountains that includes Mt. Mitchell, highest peak east of the Rockies, the waterborne deposit consists of a stratum averaging 8-ft. in thickness and containing as high as 80 per cent gravel, much of which runs to large boulders that must be broken in the field prior to delivery to the primary crusher. In addition to this deposit, the nearby North fork of the Swannanoa river is worked after heavy rains for the large amounts of sand and gravel deposited in the lower sections of the river bed. During dry weather, this deposition yields as much as 50 carloads after only a medium rainfall. The rains that occur

during the year make this a continuous operation, since the stream bed fills up again after it has been depleted of its supply of sand and gravel.

An 80-acre deposit now being

worked contains an overburden averaging about 2-ft. in thickness which is stripped by a No. 17B Bucyrus Erie dragline with a $\frac{3}{4}$ -cu. yd. bucket on a 45-ft. boom. The underlying sand and gravel is reclaimed by a Model 375 Link-Belt Speeder dragline with a 2-cu. yd. Hendrix perforated bucket. Boulders too large to be handled by the primary crusher are cast aside and broken when enough have been accumulated. The boulders, above 2- x 3-ft. in size, are drilled with jack bits, using a 105-cu. ft. portable Ingersoll-Rand air compressor. From $\frac{1}{4}$ - to $\frac{1}{2}$ -stick of 40- to 60-per cent gelatin dynamite is placed in each hole, connected to a battery and electric exploder, and shot. Since the installation of the larger primary crusher, it has not been necessary to do as much of this pop shooting as before, since the smaller crusher could not handle as large rock as the new crusher. At present, only about two per cent of the total amount sent to the plant has to be reduced.

The Speeder dragline loads a fleet of four 12-cu. yd. Euclid trucks, equipped with 150-hp. Cummins Diesel motors. Each haulage unit carries an 18-ton pay load a distance of about $\frac{3}{4}$ -mile to the plant. The trucks discharge into a 25-ton capacity steel hopper equipped with a Pioneer travelling grizzly feeder, 12-ft. long and 6-ft. wide, with 3-in. spacings. Over-size is crushed in the 24- x 36-in. Pioneer jaw crusher set at 8-in. opening, the crushed product joining the minus 3-in. product that has passed the grizzly, on a 30-in. Pioneer belt conveyor. The conveyor discharges over a chute that splits the feed to the main plant and the portable plant. This chute is movable, being secured



Dragline with perforated bucket is used for excavation and loading trucks

to a shaft that acts as a fulcrum, permitting the chute to be moved out of position to send the entire flow to either plant, or in the case of normal production, set to make an even split to the two plants.

The product going to the main plant moves over a 24-in. Universal belt conveyor to a 4- x 8-ft. barrel-type scrubber. This scrubber will be replaced by a 7- x 12-ft. Tel-smith super-scrubber this winter which will give better washing as well as increase the capacity. To provide a larger volume of feed to the new scrubber, the present belt conveyor will be replaced by a 30-in. Barber-Greene belt conveyor.

Discharge from the scrubber is to a 3- x 8-ft. triple-deck Simplicity screen with 4- 1¼-, and ¼-in. sq. openings on the three decks, respectively. Plus 4-in. gravel is reduced in a 10- x 36-in. Universal jaw crusher; the plus 1¼-in. minus 4-in. gravel is crushed in a 48-in. Tel-smith gyrasphere; the product retained on the lower deck is chuted to a 30-in. Barber-Greene belt conveyor for delivery to further processing operations; and the minus ¼-in. product passing the lower deck goes to a 20-in. x 18-ft. double screw washer. The product from both crushers is returned to the scrubber in closed circuit by a 24-in. Pioneer belt conveyor, which feeds the other 24-in. conveyor.

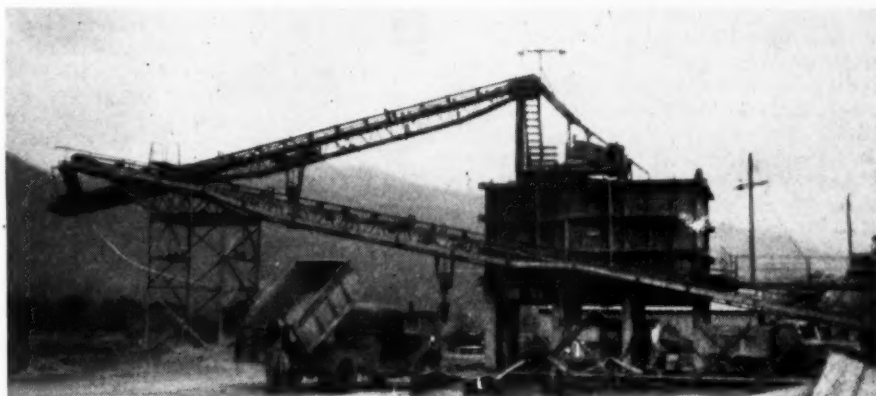
The product retained on the lower deck and sent to the 30-in. belt conveyor discharges through a transfer station to another 30-in. Barber-Greene belt conveyor, for elevation to the top of the plant for final sizing. This conveyor discharges over a single 3- x 8-ft. triple-deck Simplicity screen, however, provision already has been made to transfer the first Simplicity screen alongside so that the belt can split its discharge to the two screens for added capacity. The Simplicity screen to be moved to the top of the plant will be replaced by a 4- x 12-ft. triple-deck Simplicity screen, also to increase capacity.

Washing Removes Clay and Mica

Cleaned and dewatered sand from the first double screw washer discharges to a 20-in. x 18-ft. Tel-smith double-screw washer for further cleaning. Water is introduced to both washers through 1¼-in. pipe in the bottom of the tanks. About 1000 g.p.m. of wash water is provided by a No. 6 Cameron horizontal single-stage, double-section volute pump against a 202-ft. head. Water is added at the scrubber, the two sand classifiers, and at the screens through sprays. Overflow from the sand tanks discharges to a sump from which it is sent to waste through a 36-in. pipe that empties into the nearby river. Discharge from the second screw classifier (a new installation designed to assure the production of a cleaner product by removal of the clay and



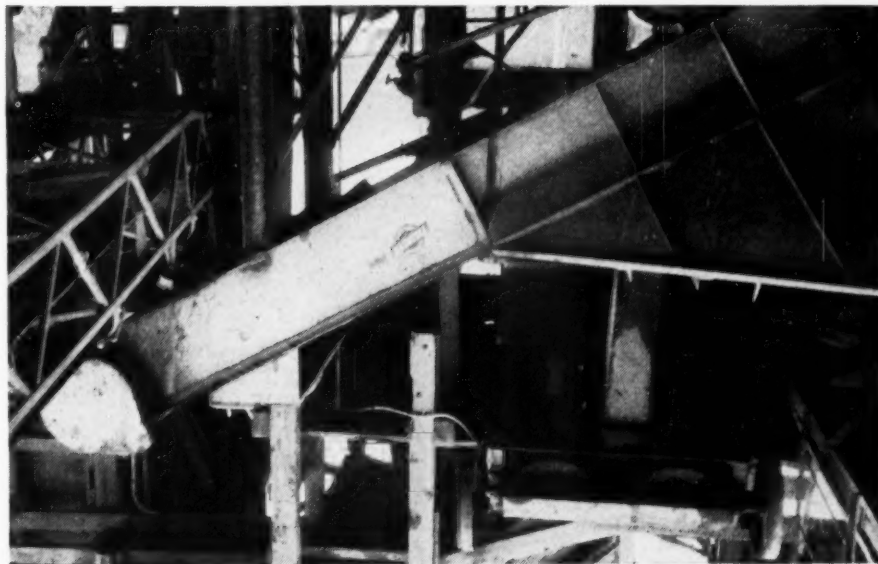
Official family at Swannanoa plant. Left to right: Paul Warlick, assistant general manager; W. W. White, office manager; J. G. Northcott, general manager; Geo. W. "Uncle George" Brandon, assistant superintendent; and L. M. Morgan, superintendent



From the classifier, sand is elevated to bins by two belt conveyors through a transfer station to reduce angle of incline. At discharge end of first conveyor, sand can be diverted to stockpile below when bins are full

mica particles) is to an 18-in. Barber-Greene belt conveyor that elevates the sand to a transfer station where a second 18-in. belt conveyor delivers to bins. This is also a new installation, the belts being placed in opposite directions to achieve enough height to feed the bins. At the discharge end of the first conveyor, a swivel chute al-

lows feed to the second conveyor, or when the bins are full, to a stockpile immediately below the end of the conveyor. Discharge from the second conveyor is into a chute that charges any one of the three bins or, by placing small baffles in the chute, charges all three bins at once. Under the chute, a 3- x 8-ft. double-deck Simplicity



Sand is given two washings in two sets of sand screws. First screw classifier discharges to one below for second washing

screen is available for the production of masons' sand when desired.

Auxiliary Portable Plant

The portable plant, recently installed to produce a crusher run product for secondary roads, is a Cedarapids Junior straight-line tandem plant. The conveyor carrying the product from the primary crusher discharges half its load to the main plant, as previously described, and half to a hopper that serves the portable plant. Under the hopper, a 24- x 48-in. reciprocating feeder discharges to a 24-in. belt conveyor for delivery through a transfer station to another 24-in. belt conveyor. The latter conveyor feeds a 3- x 10-ft. double-deck Nordberg horizontal vibrating screen with 3- and 1½-in. sq. openings on the two decks, respectively. Plus 3-in. gravel is crushed in a 10- x 36-in. jaw crusher; the minus 3-in. plus 1½-in. product is reduced in a 16- x 24-in. roll crusher; and the minus 1½-in. product is delivered by a 24-in. belt conveyor to another 24-in. belt conveyor which fills a 23-ton capacity truck-loading bin. Crushed gravel from the two crushers is conveyed to an elevating wheel, 75-in. in diameter and 22-in. wide. From this wheel a conveyor belt moves the crushed gravel to the horizontal screen, in closed circuit.

Production capacity of both plants is now 100 tons per hour, but with the installation of the new equipment this winter, the main plant will be able to produce 200 tons per hour.

R. Lee Ellis is president of the Grove Stone and Sand Co.; Chas. G. Lee, Jr., secretary; J. G. Northcott, general manager; Paul Warlick, assistant general manager; W. W. White, office manager; L. M. Morgan, superintendent; and George W. "Uncle George" Brandon, assistant superintendent.

In addition, under the same personnel, the company operates a modern Dunbrik plant with a capacity of 18,000 brick per day.

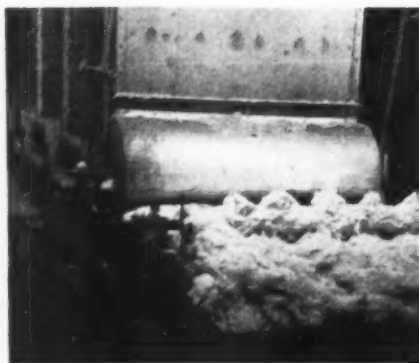
Rock Wool

(Continued from page 112)

built to hang free. A ½-hp. electric motor through an eccentric keeps the sides oscillating, or floating, sidewise continuously, to maintain a square sided felt.

Coming from the collecting chamber, the blanket of wool is compressed into desired thickness by a transverse forming roller, then enters the oven where the application of heat sets the binder to retain the established density of the blanket. The oven circulates hot air at 500 deg. F., heated by a 5-section, oil-fired burner, down through the wool blanket and then up through it again—a 2-pass oven—with the heated air re-circulated by fan. Recording and control instruments are the means to regulate oven operation.

A downdraft created by a fan in the cooling section removes excess heat from the wool blanket to enable early



Loose wool passing under picker

handling and to minimize the likelihood of combustion after the finished product has been loaded into cars for shipment.

Cutting-Packaging

Cutting of the batts is accomplished first by continuous longitudinal slicing and then, transversely, by a cross-cut saw. A series of rotary saws mounted on a transverse arbor cuts the blanket into four 15-in. wide strips and trims the edges. Trim is hand-packed into bags for sale. A second series of blades alongside serves as a spare and can be engaged for cutting other-than-standard widths.

Paper backing, or vapor barrier as it is called, is applied automatically from threading rolls before cutting to length. Travel of the cross-cut saw is timed by a timing chain and magnetic switches so that when the saw is engaged it travels forward at the same speed as the wool moves forward, in order to affect a straight cut. Batts are made with a ¼-in. tolerance on length, width and thickness. Full-thick batts are 3¼- to 3½-in. thick and semi-thick sizes measure 2 in. thick. Standard sizes are 15- x 24-in. and 15- x 48-in., with or without the vapor barrier. Capacity is 90 cartons per hour, 40 sq. ft. to the carton, or 88,000 sq. ft. of full thick batts in 24 hr. The production line for batt manufacture, including the collecting cham-



Close-up of longitudinal saws which cut four 15-in. strips continuously

ber, oven, cooler, saws and accessory equipment was designed and manufactured by James Campbell Smith, Inc.

Shipping

Straight line production methods are followed up to include carloading. A density of 2¼ to 3 lb. for batts is maintained by filling cartons on a scale as the batts come off the production line. Ten cubic feet are packed into a box. Cartons are shoved over a Speedway roller conveyor where workers compress the batts to close and seal the cartons. Mineral wool being a bulky commodity and therefore expensive to ship, compressing of resilient batts into cartons to the point where they contain 40 per cent more product than actual volume of the cartons enables a substantial increase in the loading per car. Average loading done by hand-propelled trucks is 18,000 sq. ft. of batts per car and the shipping radius is approximately 500 miles. All products are sold under the tradename "Airseal." Expansion of markets from conventional outlets Among new products to be manufactured will be industrial insulation is contemplated in the near future. materials, metal mesh blankets, industrial felts, insulation for stoves, refrigerators and air-conditioning equipment, pipe covering, acoustical materials, etc.

S. J. Drake, formerly associated with C. W. Poe, Cleveland, Ohio, and at one time superintendent of the American Rock Wool Co. Cleveland plant, is superintendent of the plant. A. A. Oesterle is general superintendent of the Federal Portland Cement Co., Inc., of which the Insulation Division is subsidiary.

Carbon Monoxide Indicator

NATIONAL BUREAU OF STANDARDS, Washington, D. C., has announced the development of a colorimetric indicating gel that will detect and estimate less than one part of carbon monoxide in 500 million parts of air, a sensitivity more than 100 times greater than that attained by former chemical indicators. The indicating material, yellow in color, is a silica gel impregnated with a complex silico-molybdate compound and catalyzed by means of palladium in the form of the sulphate. The yellow indicator turns various shades of green and bluish green on exposure to very low concentrations of carbon monoxide. The color response is a function of time of concentration of carbon monoxide, a direct parallel to the physiological response to this gas. For use, the indicator gel is sealed in a small glass about 5 in. long and the approximate diameter of a lead pencil, with protecting layers of pure silica gel in each end of the tube.

Gypsum Association Moves

GYPSUM ASSOCIATION, Chicago, Ill., has announced that its offices have been moved to 330 S. Wells Street, Chicago 6, Ill.

(Continued from page 109)

solutions for control tests, and to weigh samples for these tests. What we have done in the use of a control test is to transfer the precise weighing operation, and in some instances all of the weighing operations, from the plant to the laboratory, where conditions are more favorable for precision. This is the function of the control test. The particular constituent determined in the control test is not of primary interest. For example, if we were to seek to obtain 13.71 per cent SiO_2 in the mix in the operation we have been considering, it would not be because the SiO_2 content is of special interest, but because when this percentage is obtained, all the constituents are present in suitable proportions.

Control Tests in Common Use

The control test in most common use is the acid-alkali method, which is a determination of the amount of standard acid solution neutralized by a weighed sample of raw mix. The number of cubic centimeters of acid is multiplied by a factor to obtain the equivalent percentage of CaCO_3 in the mix. Since both CaCO_3 and MgCO_3 are neutralized by the acid, but MgCO_3 neutralizes 1.19 times as much acid as the same weight of CaCO_3 , the test value is the sum of the CaCO_3 and 1.19 times the MgCO_3 . In this study the test value obtained by the acid-alkali method will be referred to as the *carbonate content*.

At some plants the control test is a measurement of the volume of CO_2 gas liberated when a weighed sample of raw mix is treated with acid in a calcimeter. The volume of gas is converted to a weight basis, and expressed as percentage of CaCO_3 in the sample, by means of tables for taking into account both temperature and barometric pressure. MgCO_3 liberates CO_2 , and is included in the same manner as in the acid-alkali method. The test value is similarly referred to as the *carbonate content*.

In the analyses given in tables in this paper the carbonate content is obtained by calculation from the formula,

$$\text{Carbonates} = 1.7848 \times \text{CaO} + 2.4824 \times \text{MgO}$$

The carbonate content obtained by the acid-alkali or calcimeter methods may not agree with these theoretical values, since a small percentage of the CaO or MgO may be present in some form other than carbonate. In addition, some of the other constituents may have a small influence on the

value obtained by the acid-alkali method. However, this does not interfere at all with the application of these methods when the test value to be obtained in a correctly proportioned mix is known.

Variations in Raw Material Composition

The function of control tests has been described with reference to an ideal condition, in which the raw materials do not vary in composition. In practice, cement raw materials are obtained from natural deposits, and these are somewhat variable in composition. As the limestone and shale received in the plant change in composition, the proportions required in the mix also change. These changes are usually accompanied by changes in the carbonate content required to secure a satisfactory mix composition. The carbonate content required at any given time to secure a desired composition will be referred to as the *carbonate requirement*. Carbonate determinations still serve in securing accurate control of proportions, but the value sought must be adjusted from time to time to correspond with the carbonate requirement. The laboratory phase of the proportioning operation consequently involves two problems: to establish relations between the various constituents to be maintained continuously in the raw mix fed to the kilns; and to develop principles which may form a basis for methods of control in which the advantages of the speed and convenience of carbonate determinations are retained in operations in which the principal object is to secure desired relations between constituents. The first problem will be discussed briefly. The second problem involves the development of a method for determining the carbonate requirement, which is discussed in detail in Part II. The application of the principles to be brought out is an individual problem for each plant, because of differences in equipment and layout. To assist in planning a system of control suitable for a particular plant, application to

typical processes will be discussed at some length in Part III.

Relations Sought in Composition Control

Since the early days of the industry various formulas have been devised to express relations to be sought in control of composition. In some cases these formulas have been empirical, while in others the formulas have

expressed relations based upon theories of constitution of portland cement clinker, usually those generally accepted at the time. It is not the purpose of this paper to discuss the history of proportioning formulas, but to consider composition control on the basis of present ideas concerning the constitution of portland cement clinker. Although it is understood that further research may introduce some modifications,* particularly with reference to minor constituents, it may be stated that control of composition on the basis of present knowledge of the compounds formed from the major constituents has led to greater uniformity in kiln operation and in the quality of the clinker produced.

At the present time the major constituents of clinker are believed to be combined in the form of tricalcium silicate, $3\text{CaO} \cdot \text{SiO}_2$, dicalcium silicate, $2\text{CaO} \cdot \text{SiO}_2$, tricalcium aluminate, $3\text{CaO} \cdot \text{Al}_2\text{O}_3$, and tetracalcium aluminoferrite, $4\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$. In the range of compositions encountered in portland cement clinker, magnesia is essentially uncombined. The formulas for the cement compounds may be abbreviated by using the symbols C, A, S, and F to represent CaO , Al_2O_3 , SiO_2 , and Fe_2O_3 , respectively. In the abbreviated form, the formulas of the compounds, in the order in which they are stated above, are C_3S , C_2S , C_3A , and C_4AF .

The percentages of the compounds may be calculated from the oxide composition of a clinker or cement. It is common knowledge, however, that two cements of practically identical calculated compound composition may behave differently. This may be due to the influence of minor constituents, which is not fully understood, to the presence of glass as a result of rapid cooling, or to some lack in our present knowledge of the reactions of the major constituents in the clinking process, so that the effect of differences in heat treatment in the kiln is not understood. However, the calculated compound composition is related to the burnability of raw mixtures in such a way that when it is controlled within reasonable limits variations in burnability are small and the operation of the kiln is not disturbed. Uniform potential compound composition accompanied by uniform kiln operation leads to uniformity in the quality of the product.

The compound composition, calculated on the assumption of complete combination, will be referred to as the *potential composition*. The following equations for calculating potential

*Since this was written, a paper by M. A. Swayze has appeared, in which is shown that C_2F forms a complete series of solid solutions with a new compound, $\text{C}_6\text{A}_2\text{F}$. This series includes C_4AF . It has been found by the writer that expression of composition in these terms will not affect the formulas in this paper for estimating the carbonate requirement, nor the methods of control described. Mr. Swayze's paper appeared in the *American Journal of Science*, Vol. 244, No. 1, Jan., 1946, and Vol. 244, No. 2, Feb., 1946.

$$\begin{aligned} \text{C}_3\text{S} &= 4.0710 \text{ CaO} - 7.6024 \text{ SiO}_2 - 1.4297 \text{ Fe}_2\text{O}_3 - 6.7187 \text{ Al}_2\text{O}_3 & (1) \\ \text{C}_2\text{S} &= 7.6024 \text{ SiO}_2 + 1.0785 \text{ Fe}_2\text{O}_3 + 5.0683 \text{ Al}_2\text{O}_3 - 3.0710 \text{ CaO} & (2) \\ &= 2.8675 \text{ SiO}_2 - 0.7544 \text{ C}_3\text{S} & (2a) \\ \text{C}_3\text{A} &= 2.6504 \text{ Al}_2\text{O}_3 - 1.6920 \text{ Fe}_2\text{O}_3 & (3) \\ \text{C}_4\text{AF} &= 3.0432 \text{ Fe}_2\text{O}_3 & (4) \end{aligned}$$

composition will be used in all computations in this paper.

It will be observed that in the equations for C_3S and C_2S the constituents derived from limestone and shale are of opposite sign, and that the coefficients for CaO , Al_2O_3 , and SiO_2 are large. It is to be expected, then, that a small change in proportions of limestone and shale will have a large effect upon the potential C_3S and C_2S . An increase of 1.0 per cent in the percentage of limestone will increase the potential C_3S about 12 per cent, and reduce the potential C_2S about 11.5 per cent. The 0.5 per cent change in the total C_3S and C_2S is distributed among the other constituents, C_3A , C_4AF , and MgO , with only small changes in each. Thus it is seen that control of potential C_3S or C_2S is important, particularly since it is known that an increase in C_3S with a corresponding decrease in C_2S makes the mix more difficult to burn in the kiln. It may be mentioned further that the theoretical lime limit is attained when the potential C_2S is reduced to zero. From this it is easy to understand why the crude proportioning processes in the early days of the industry frequently led to periods in which the product was unsound. The trend in recent years toward higher C_3S compositions, to increase early strength, makes fine control of composition much more important than it was twenty years ago.

Since at most plants the sum of the potential C_3S and C_2S is nearly constant, it is usually unimportant whether a constant C_3S or C_2S is sought. If the raw materials vary in such a way that the sum of the two silicates varies considerably, and the C_2S is brought too low at times when controlling on the basis of potential C_3S , it is a safer practice to seek a constant potential C_2S . Some operators prefer to maintain a constant C_3S/C_2S ratio. This offers no particular advantage when the sum of the silicates is fairly constant. When the sum of the silicates is variable, control of the C_3S/C_2S ratio is a safer practice than control of potential C_3S content. It amounts to a compromise between control of potential C_3S and control of potential C_2S .

An Outline of the Plan of Attack

Before entering into a detailed study of the methods of determining the carbonate requirement and applications to typical processes, it is desirable to obtain a view of the general features of the procedure to be described. In controlling proportions of raw materials, the chemist decides upon a carbonate content to be maintained in the mix until conditions indicate the need of a change, when a higher or lower carbonate content is selected. The value selected as a basis for controlling proportions will be referred to as the *holding point*, which is a term used in some cement

plants. The general plan is to adjust the holding point so that it will follow changes in the carbonate requirement. This can be accomplished by determining the carbonate requirement once a day, or perhaps twice a day if it is found to be necessary. Through these determinations of the carbonate requirement and the corresponding adjustments of the holding point, the advantages of the speed and convenience of controlling proportions by carbonate determinations is retained in control operations for maintaining a constant potential C_3S or C_2S .

For the determination of the carbonate requirement, to be described later, a sample of the raw mix is analyzed, determining SiO_2 , Fe_2O_3 , Al_2O_3 , CaO , and ignition loss. The carbonate content is also determined by the rapid control method. This determination requires several hours, even with the most rapid analytical methods. It should be evident, then, that if the limestone and shale change in composition abruptly, determinations of the carbonate requirement will serve no useful purpose. To secure good control of the proportioning operation the changes in raw material composition must be gradual, either naturally or through handling the raw materials in such a manner as to eliminate abrupt variations.

Definitions of Terms

Certain of the terms already mentioned, and others, will be used repeatedly in the discussion which follows. Some of these will be used in a more general sense, others in a more restricted sense, than that in which they are commonly understood. They are defined here in the sense in which they are used in this paper.

Limestone and Shale. Cement raw mixtures are composed principally, sometimes entirely, of calcareous and argillaceous materials. The calcareous material may be limestone, marl, oyster shells, etc. All these materials, used as a source of CaO , will be referred to as *limestone*. Similarly, the argillaceous material, supplying both SiO_2 and Al_2O_3 , and usually Fe_2O_3 , may be clay or shale. Such materials will be referred to as *shale*. These materials may be combined in nature in a single raw material, cement rock. Methods referring to limestone and shale apply also to cement rock. On the other hand, blast furnace slag, which supplies both calcareous and argillaceous constituents, offers special problems in control of composition which are not considered in this paper.

Iron Ore. Any material which is used as a source of Fe_2O_3 , such as iron ore, pyrites cinders, mill scale, etc., will be referred to as *iron ore*.

Sand. Any material added to the mix to increase the SiO_2 content will be referred to as *sand*.

Carbonates. The acid-neutralizing

value of the mix, or the amount of CO_2 evolved by the mix in acid, is expressed as a percentage of $CaCO_3$. This will be referred to as the carbonate content, and is equal to $CaCO_3 + 1.19 MgCO_3$, as previously explained. It includes $MgCO_3$ expressed as $CaCO_3$.

Carbonate Requirement. The carbonate content which the raw mix should have to secure a desired potential C_3S or C_2S content.

Holding Point. The carbonate content selected by the plant chemist as the value to be maintained in the mix. The holding point may be changed from time to time, as indicated by changes in the carbonate requirement.

Complete Analysis. Analyses of raw mixtures are referred to as "complete analyses" if they include SiO_2 , Fe_2O_3 , Al_2O_3 , CaO , and ignition loss.

Lag in Control. The delay in adjustment of proportions due to the time elapsing between proportioning the materials and the determination of carbonate content. For example, this will include the time required for material to pass from the proportioning point to the sampling point, the sampling interval, and the time required for the carbonate determination.

Preliminary Raw Mixtures. Mixtures approaching the desired raw mix composition, prepared for use in a second proportioning operation. Since a second proportioning operation is seldom used in the dry process, preliminary mixtures are usually in the form of a raw mix ground with water, commonly referred to as a slurry.

Potential C_3S or C_2S . The value obtained by applying equation 1 or 2 to the composition of a clinker, raw mix or raw material, expressed on an ignited basis. In the case of a raw material, such as limestone or shale, the calculated value may be several hundred per cent, and may be positive or negative. The value obtained is used in computations as though such percentages could actually be present.

(To be continued)

Missouri Lime Project

JOSEPH PERKINS, East Lynn, Texas, has taken options on 1000 acres of farm land near Illmo, Mo., for the purpose of establishing a lime plant and opening a quarry from which to obtain stone.

Open Gravel Plant

HALLET & OBERG have opened a sand and gravel plant on the Des Moines river near Slayton, Minn. The plant, said to be valued at \$40,000, was designed by E. F. Oberg, one of the partners.

Buy Gravel Company

LARSEN SAND AND GRAVEL CO., Marshall, Minn., has been purchased by Hubert Deutz, Jr., and Franklin J. Crow who will operate under the name of Deutz and Crow Sand and Gravel Co.

What Is In the Future For GRINDING?

Grinding practices and machinery of
the cement industry over the past
fifty years and trends for the future

By JOSEPH M. WOLFE*

IT IS PROPOSED in this article to review grinding practices and equipment used in cement plants during the past fifty years and to trace the progressive stages through which two-stage, closed-circuit wet raw grinding has been evolved since the American Portland cement industry was firmly established. The Portland cement industry was first able to compete successfully with imported cement in 1896, due solely to the rotary kiln, which was first used in this country in 1887-9. This development permitted continuous instead of intermittent output of clinker, simplified the preparation of the raw mixture, and decreased labor costs considerably.

Since the early kilns were 4 ft. in diameter and only 40 ft. long, reaction time was less than in the stationary vertical kiln. This new operating condition required finer grinding of the raw mixture so that the proper combination would occur more rapidly. To meet this condition, the Griffin mill was developed about 1892. This mill replaced the edge-runner which was suitable only for grinding rela-

tively coarse materials that had been handled in the form of briquets in the vertical or dome kilns.

The Krupp ball mill, which had been developed in Germany, was introduced into American cement plants about 1900, and gained rapid favor as a preliminary grinder preceding a finish-grinding tube mill. Although the Griffin mill was self-contained as a fine grinder, whereas the tube mill required a Krupp mill, the latter combination possessed greater inherent capacity and efficiency and fewer units were required for a given production.

The Bradley-Hercules mill, a redesigned and improved version of the Griffin mill involving the same basic construction, made its appearance about 1910. It was equipped with three rollers hung on three vertical shafts and was designed for primary reduction work to operate in conjunction with a tube mill. It's still used today for dry grinding raw materials and clinker in a number of plants. Use of the ball and tube mill increased rapidly between 1900 and 1910.

Between 1910 and 1915, the principal item of equipment used for fine grinding both raw materials and ce-

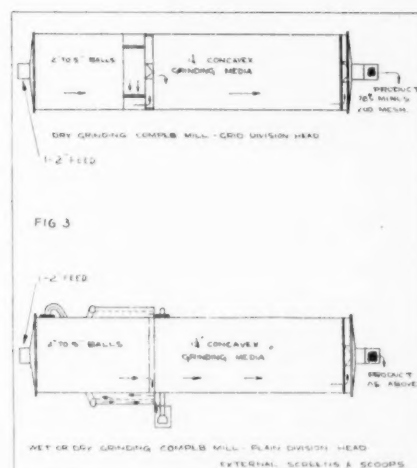


Fig. 3: Compeb mill developed in 1915, and combined primary and finish grinding operations in a single milling unit. Mill feed was 1-in. to 2-in. size and product was 78 to 85 per cent minus 200-mesh up to about 1920. After 1920, the Compeb mill was adapted for wet grinding by adding external peripheral screens and scoop pipes

ment was the tube mill. In the earliest types the interior lining consisted of thick silica blocks and the grinding media of flint pebbles. Metallic liners and grinding bodies of sufficient hardness and toughness to resist abrasion and thus limit contamination of the product with worn iron particles were produced eventually. These were thinner than the silica liners and permitted an increased charge of grinding media. In a 5 ft. 6 in. x 22 ft. tube mill, which was a common size, the use of metallic media and liners required 25 per cent increase in power and resulted in a 33-1/3 per cent increase in capacity contrasted with the performance obtained with non-metallic materials. The tube mill did not have a diaphragm or partition to segregate balls of different sizes. This was a feature that later characterized the compeb mill, which is a multi-compartment mill. Two typical grinding circuits in-

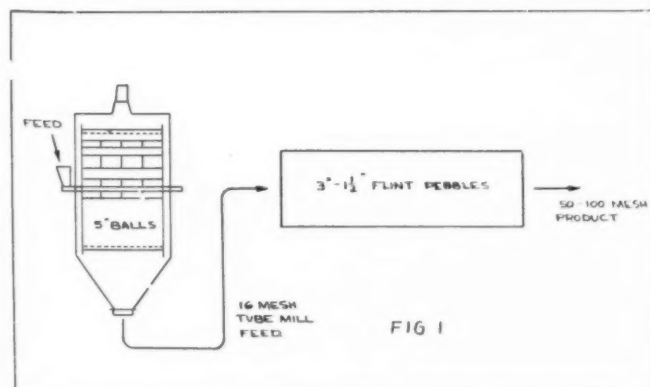


Fig. 1: Krupp or Gates ball mill and secondary tube mill, two-stage, open-circuit grinding, wet or dry. Product from tube mill is 50- to 100-mesh fineness depending on period between 1900 and 1920. First application about 1900. Tube mill was lined with siliceous and loaded with flint pebbles

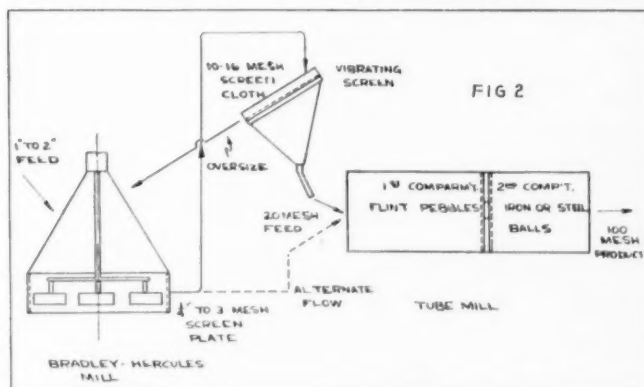


Fig. 2: Bradley-Hercules mill and tube mill, two-stage grinding. First stage was in closed-circuit with a vibrating screen, finishing stage in open-circuit with product from tube mill 90 per cent minus 100-mesh. This arrangement was developed about 1910. Tube mill was loaded with metallic grinding media in second compartment; flint pebbles in first compartment

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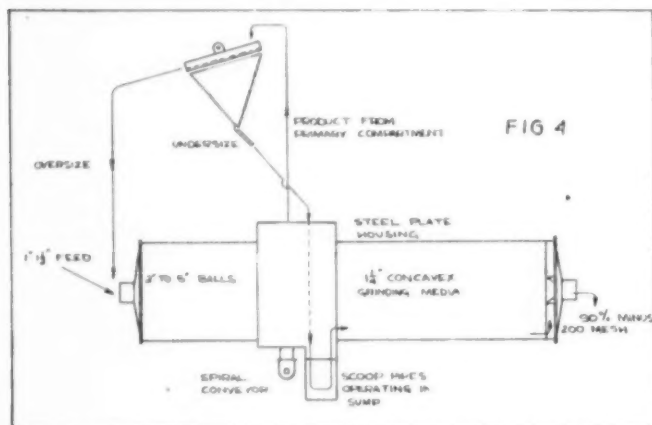


Fig. 4: Compeb mill with the first compartment in closed-circuit with vibrating screen; second compartment in open-circuit. This circuit was introduced in the early 1920's, wet or dry grinding

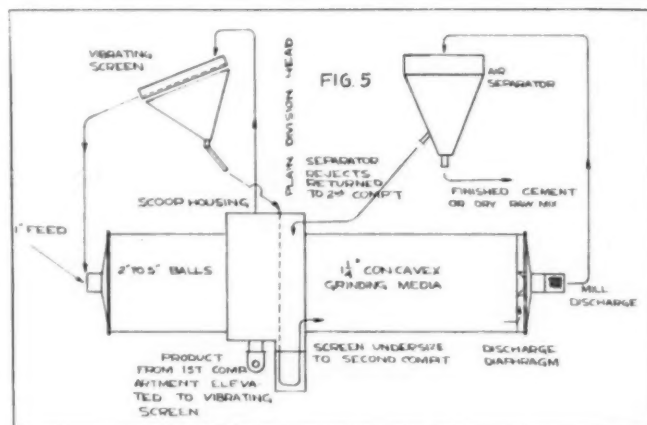


Fig. 5: Compeb mill with the first compartment in closed-circuit with vibrating screen, but with the second compartment in closed-circuit with air separator, producing finished cement or dry raw mixture 90 to 92 per cent minus 200-mesh

volving the tube mill are shown in Figs. 1 and 2.

During the period from 1910 to 1925, the tube mill as a "finish" mill was sometimes replaced by a mill of the "ring roll" or "roller and die" type. A number of varieties of this design were adopted for dry grinding such as the Fuller-Lehigh, Kent, Raymond mills and these were applied in grinding circuits interchangeably with Krupp mills and tube mills. In modern cement plant practice, ring and die mills, known as the unit-firing mills, are employed extensively for all three functions of pulverizing, drying and injecting coal into the rotary kiln.

Next in importance to the rotary kiln, the adoption of which revolutionized the method of producing portland cement clinker, was the appearance of the Compeb mill (Fig. 3) about 1915. This mill integrated the ball mill and tube mill into a single machine, thus creating a very compact milling unit in which a coarse one inch

feed could be reduced to the desired fineness. From an operating standpoint, the Compeb mill permitted the elimination of conveying and elevating equipment between the former physically independent units of a two-mill layout and decreased maintenance work. It also simplified plant design and decreased the cost of buildings and other structures, such as bins and foundations. By 1930, the trend toward two-stage grinding in separate and distinct grinding units was resumed for reasons that are related to the development at that time of very finely ground types of cement.

As originally constructed, the interior of the compeb mill consisted of two grinding chambers or compartments separated from each other by a diaphragm or division head whose primary function involved the segregation of the grinding media. Coarse grinding in the preliminary chamber was handled by balls ranging from 2- to 5-in. in size, while the finish com-

partment, in which the material was further pulverized, was loaded with 3/8- to 1 1/4-in. balls. With the development of Compeb mills up to 9 1/2 ft. in dia. at the primary compartment and 8 feet in diameter at the finish compartments, the fine-grinding compartment was sub-divided into two chambers by a division head, thereby making a three-compartment mill. Separating the small grinding media into two groups, ranging from 1 1/4- to 1- and 3/8- to 5/8-in., increased production.

The division head or wall between the fine-grinding compartments regulates the flow of material to some extent but does not function as a classifier. The primary compartment of the modern Compeb mill generally operates in closed circuit with an integral classifying device of which the diaphragm forms a part. In the original Compeb mill, a grid-type division head, comprising an annular arrangement of grid-bars within and at the discharge end of the primary grinding

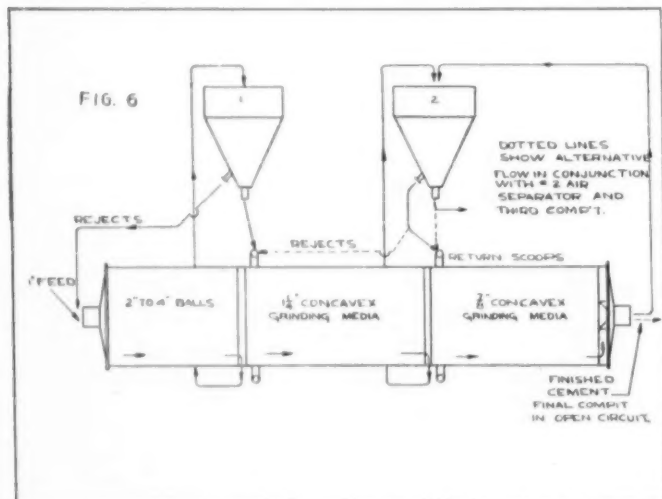


Fig. 6: Compeb mill, three-compartment, operating in closed-circuit with two air separators; first and second compartment in closed-circuit with third compartment operating in closed- or open-circuit. Product is 93 to 95 per cent minus 200-mesh, 1700 surface area. This circuit appeared about 1930 when finer grinding began to be practiced

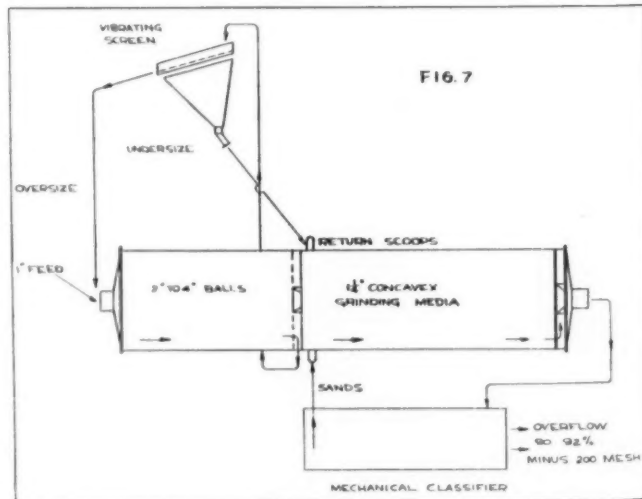


Fig. 7: Compeb mill wet grinding with first compartment in closed-circuit with vibrating screen, second compartment in closed-circuit with mechanical classifier. This represents conversion of Compeb mill to the closed-circuit grinding during 1925 to 1935 period with trend toward wet process

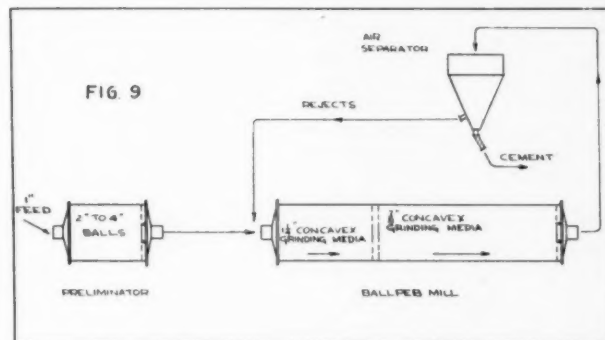
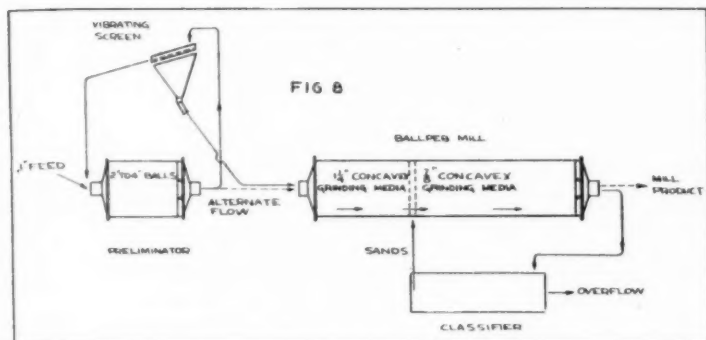


Fig. 8: Preliminary ball mill and Ballpeb mill, a wet-grinding, two-stage closed-circuit developed between 1930 and 1935. Dry grinding also was carried on in similar combinations in conjunction with air separators. Ballpeb mills were Compeb mills adapted to the newer grinding circuits. Fig. 9: Preliminary ball mill and Ballpeb mill operating in closed-circuit with air-separator. Vibrating screen may be in closed-circuit with Preliminary. This type of circuit was devised to accomplish finer grinding of raw mixtures and cement by modernizing existing open-circuit Compeb mill installations.

chamber, prevented oversize particles from escaping, but was not a true classifier. A later development, which was designed for wet as well as dry grinding, incorporated a simple division wall supported on a steel spider at the end of the first compartment with slotted holes in the diaphragm plates on the feed side and solid or blank plates on the discharge side. The ground material flowed through the openings in the division head and then out of the mill in a radial direction through eight holes equally spaced in the mill shell.

The product was then conducted over a peripheral screen attached to the exterior of the mill shell and reverse spirals conducted the oversize in the direction of the feed end of the mill. The oversize then passed into two receiving pockets spaced diametrically opposite each other in a circular channel and the material followed a path through two outside return pipes which terminated in special nozzles from which circulating load was re-introduced into the primary chamber for regrinding. Partially ground material of necessary fineness, from 16- to 30-mesh, having passed through the peripheral screen, was conveyed by spirals attached to the

outside of the screen toward a sump or pit located directly under the mill at the beginning of the first fine grinding compartment.

A suitable steel plate housing encloses the screening apparatus and the two-pickup scoop pipes which revolve with the pit or feedbox and collect the screen undersize. The pickup-pipes function like a double-scoop feeder except that they enter the mill through the shell and liners rather than through the hollow trunnion. This arrangement is suitable for either wet or dry grinding. The Compeb mill employed for wet grinding (Fig. 3) is shown with the integral peripheral screen replaced by a modern vibrating screen (Figs. 4 and 8) which performs more efficiently and handles greater circulating loads than a cylindrical screen. The grinding circuit is complicated by either an elevator or sand pump when an independent vibrating screen is employed.

Fine Grinding Spurs Use of Air Separators

During the latter 1920's, American cement manufacturers, following the fine grinding practice that had originated in Europe, began to grind

super-fine, high-early-strength cement as well as extra-fine standard portland cement. At first, in order to meet the new requirements, Compeb mills up to 50 ft. in length were developed for maintaining the existing rates of production at the increased fineness. Except for the primary compartment, these mills had generally operated in open-circuit, which was suitable for grinding clinker to approximately 90 per cent minus 200-mesh. However, as progressively finer grinding was attempted, it became evident that in larger mills running in open-circuit there developed detrimental conditions such as ball coating, overgrinding and overheating, which so reduced production that it became impracticable to produce finely-divided cements. It was then that the industry turned to the air separator, a device which had been available as early as 1903 but which had not been given serious consideration because the classification or closed-circuit principle was neglected due to the fact that there was no grinding problem when cements were comparatively coarse. The air-separator was applied to the Compeb mill with encouraging results in such typical circuits as shown in Figs. 5 and 6.

After the practice of grinding

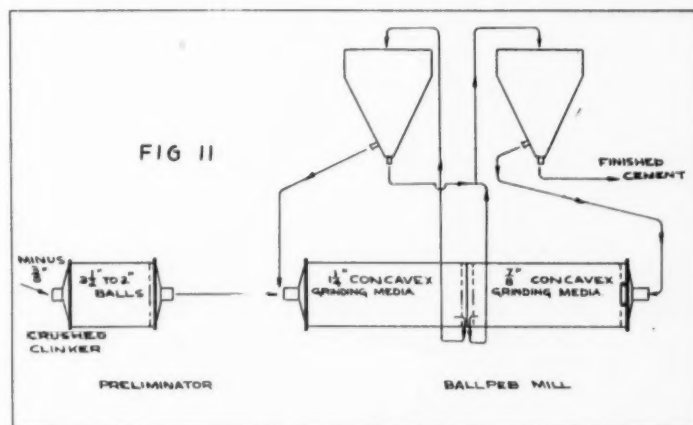
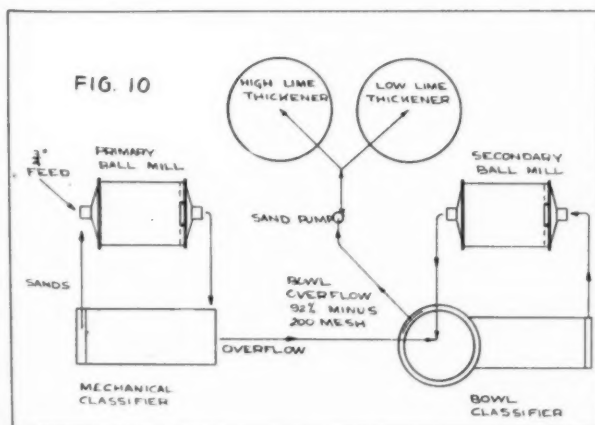


Fig. 10: Modern two-stage, closed-circuit wet raw grinding circuit (developed 1936-38) designed for high-capacity production of slurry required in the manufacture of various types of portland cement. Grinding system has great flexibility, permitting the preparation of special slurries with accurate control of particle size. Fig. 11: Clinker grinding circuit (developed 1938-39) installed to grind standard cement at 1750-1800 surface area and high-early-strength at 2600 surface area. This is a grinding arrangement of high efficiency, consisting of a 10½' x 12-ft. Preliminary and three 830 Ballpeb mills. Ball mill feed is the product of a secondary crusher

standard cement to a fineness of 92 to 96 per cent minus 200-mesh had been definitely established in the industry about 1930, with high-early-strength cement comminuted to beyond 96 per cent minus 200-mesh, a firm trend was noted toward the adoption of the wet process which had begun about 1920 and which has continued to the present and appears likely to persist for the future as far as can be foreseen.

Trend to Wet Process

The first machinery for closed circuit grinding in a wet process cement plant was sold by the Allis-Chalmers Manufacturing Co. in December 1914 to the International Yeletz Cement Company in Russia.

The first patent on closed circuit grinding in a cement plant (No. 1,184,656) was issued May 23, 1916 (filing date August 31, 1914).

The change to the wet process started when cement plant chemists recognized that while high-early-strength cement derived its desirable properties from its very finely divided state, further enhancement of its quick-setting properties could be obtained when the percentage of lime in the raw mixture was increased. Since a high percentage of lime could result in free lime in the cement and unsoundness, if the proper degree of combination was not affected during the burning process, the raw materials had to be ground uniformly and to well over 85 per cent minus 200-mesh and precise chemical control of the raw mixture had to be maintained. This was more readily accomplished by the wet process in which the raw ingredients are ground with water and later the slurry or pulp is blended to the proper chemical composition by intermix-

ing slurry from two or more tanks equipped with agitators.

In some plants the transformation to wet grinding in closed-circuit with mechanical classifiers was undertaken by arranging the existing Compeb mills to operate as shown in Fig. 7. In some instances, two classifiers were installed with each mill in a crude two-stage circuit. However, it was not long before the disadvantages arising from the complicated physical installation and the resultant materials handling problems became apparent in maintenance work. Also, the Compeb mill, when operated with mechanical classifiers inherently lacked the flexibility and versatility that raw grinding, as well as clinker grinding circuits required as milling of various types of raw slurries and cements of varying fineness became necessary. The next stage of development in grinding circuits resulted in the arrangement illustrated in Fig. 8. This belongs to the important period between 1930 and 1935 when the transformation of the wet process assumed major importance and it became firmly fixed in the basic design of new cement plants and the modernization of existing plants after 1935.

The Compeb mill in Fig. 8 has been converted to a Ballpeb mill which is a fine-grinding unit designed to operate with small grinding media. The primary compartment of the Compeb mill is loaded with 1½-in. balls or concave, and the secondary compartment with ¾-in. concave. In each case, a preliminator ball mill operates in conjunction with a Ballpeb mill, although one large preliminator is sometimes employed to prepare feed for two or more Ballpeb mills. This two-stage arrangement provides consider-

able flexibility and permits balanced flow of intermediate products when producing different raw slurries. To maintain output when preparing very fine raw mixtures, the product of the preliminator would be distributed to additional Ballpeb mills, thus supplementing the secondary grinding capacity.

A typical dry grinding or clinker grinding circuit commonly used between 1930 and 1935 is shown in Fig. 9. Here the mechanical classifier is replaced by an air-separator and the sand pumps are replaced by vertical bucket-elevators and spiral conveyors. High-early-strength or standard cement could be ground alternately by adjusting the auxiliary equipment to alter the circuit flow scheme or by employing more or fewer Ballpeb mills. Flexibility is provided for adjusting the flow of material within the circuit to reach one or two air-separators, depending on the fineness desired and the number of mills employed.

The variations in grinding circuits which became possible with the ball mill when operated in conjunction with the Ballpeb mill found practical application as several new types of cement were developed in response to specifications written by engineers engaged in the construction of large dams such as Boulder Dam. Two-stage clinker grinding has been incorporated in both new cement plants constructed in the United States since 1939. It follows the pattern used in modernizing numerous important cement plants during the past ten years.

Flotation

Concurrently with the growing recognition and adoption of wet raw classified grinding came the develop-

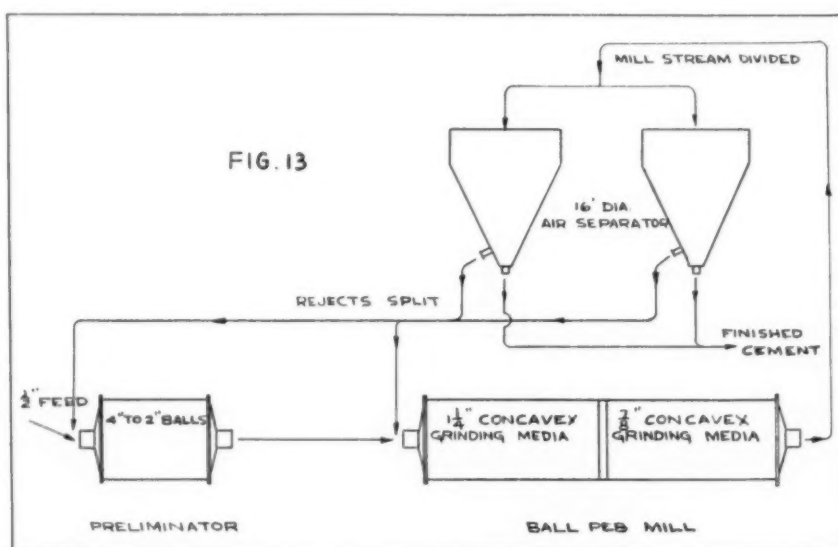
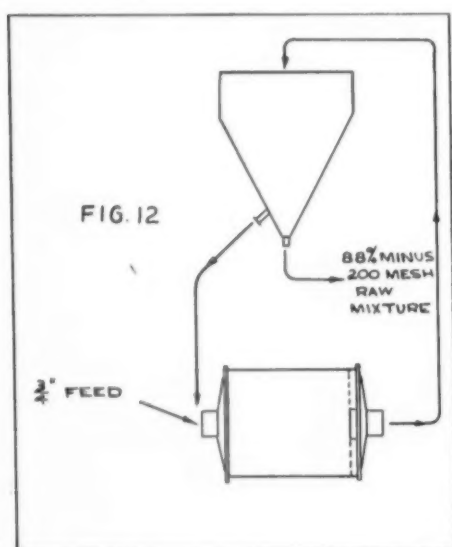


Fig. 12, left: Dry grinding cement raw mixture in a single ball mill operating in conjunction with an air separator. Detention time within Preliminator is short; the contents of the mill, which operates at high circulating load, are exposed to the grinding action of the ball charge for a limited period and overgrinding is minimized. Uniform particle size of the raw mixture attained for improved kiln operation about 1940. Fig. 13: Modern clinker grinding circuit (1942) employing Preliminator and Ballpeb mill in closed-circuit with two air separators. Recirculation of a portion of the rejects to the Preliminator provides a better balanced operation. Each circuit consists of a 8¼- x 9½-ft. Preliminator and 830 two-compartment Ballpeb mill

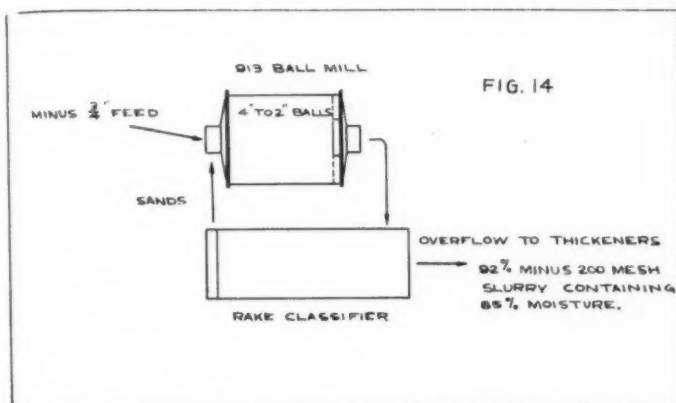


Fig. 14: Medium sized wet process cement plant (1945), incorporating the most modern apparatus, including an intermediate level ball mill and rake classifier for production of 92 per cent minus 200-mesh raw slurry. Grinding circuit operates at a circulating load of 150-200 per cent; one 9- x 13-ft. ball mill produces sufficient raw mixture for the production rating of plant

ment of the Breerwood process for the beneficiation of cement rock by flotation. This process permitted the use of limestone that was formerly unsuitable for cement manufacture due to low content of calcium carbonate or improper percentages of silica, alumina and ferric oxide. Incorporation of the Breerwood process into cement manufacturing introduced the apparatus and terminology employed in discussing the hydro-metallurgical treatment of ores. Although this process was applied at only a few plants, the association of the flotation operation in the cement industry served to draw attention to a large scale grinding methods and equipment as used in the concentration of ores by flotation.

After 1935, cement plant operators, confronted with the necessity of rehabilitating existing plants and converting to the wet process, as well as the selection of new grinding equipment, planned their raw milling departments to include ball mills, generally arranged in two-stage circuits, each mill with a suitable classifier.

This trend represented a noteworthy departure from the traditional primary ball mill and long secondary mill. The latter involved complexities in arranging a close-circuit due to its length and construction. The long mill also cancelled to some degree the full benefits of closed-circuit grinding since the material remained in the grinding chamber for a comparatively long time between classification cycles and this engendered a certain amount of overgrinding. The objective in milling cement raw materials is to produce a maximum number of particles of a desired size and overgrinding, which implies a loss of control of particle size, and is objectionable from the standpoint of proper burning conditions. (A resume of the advantages of closed-circuit grinding for cement raw materials appears on page 22 of A. M. Kivari's paper T.P. of the A.I.M.M.E. on the milling operations of the Permanente Cement Co.)

Three important and outstanding

installations of two-stage wet closed-circuit grinding, involving ball mills exclusively, were made in this country between 1938 and 1942. Two of these used the Breerwood flotation process. By 1938, the technology of making portland cement to meet rigid specifications had progressed to a point where fineness of raw grinding was carried to a degree in excess of 90 per cent minus 200-mesh. This was more practical to accomplish in a two-stage series circuit instead of a single-stage ball mill and classifier. Generally cement raw materials are somewhat less difficult to grind than most ores and the two-stage arrangement in short ball mills permits maintaining control of particle size and minimizes overgrinding as reference to the trade and technical publications herein cited will show.

The circuit adopted at each of the three plants mentioned is illustrated in Fig. 15. In two instances the mills are 9½- x 8¾-ft. while in the third the mills are 9½- x 10-ft. Fineness varies between 88 and 96 per cent minus 200-mesh for standard cement slurry, but 99 per cent minus 200-mesh slurry is required at one plant when high-early-strength cement is made. This fineness would require almost prohibitive energy consumption in open circuit grinding, but the two-stage closed circuit illustrated in Fig. 10 makes practicable the milling of raw mixtures to this extreme fineness.

Prevent Kiln Ring Formation

The high degree of control of particle size possible with the two-stage closed-circuit is reflected by the uniform burning conditions that prevail within the rotary kiln. The tendency to form rings, which are obstructions that build up on the refractory lining of the kiln especially in the burning zone, is greatly diminished. Rings may be caused by both variations in particle size as well as through segregation which results from differences in the particle size of each of the materials comprising the raw mixture af-

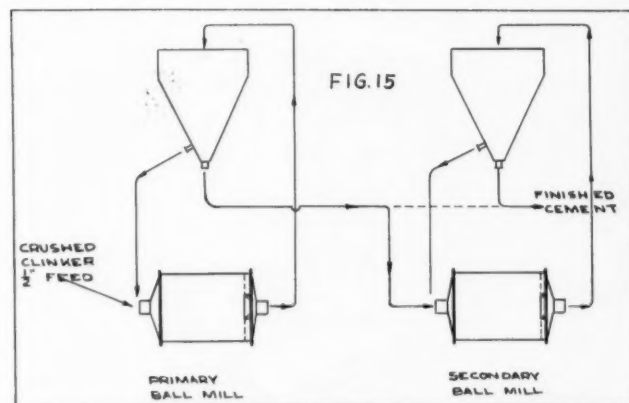


Fig. 15: Two-stage clinker grinding circuit involving two ball mills in series to the exclusion of traditional long secondary grinding mill. When grinding high-early-strength cement, a third ball may be added and operated as a final grinding open-circuit mill. Two of the circuits shown are located in the clinker grinding department of a cement plant rated 6000 bbls. daily capacity

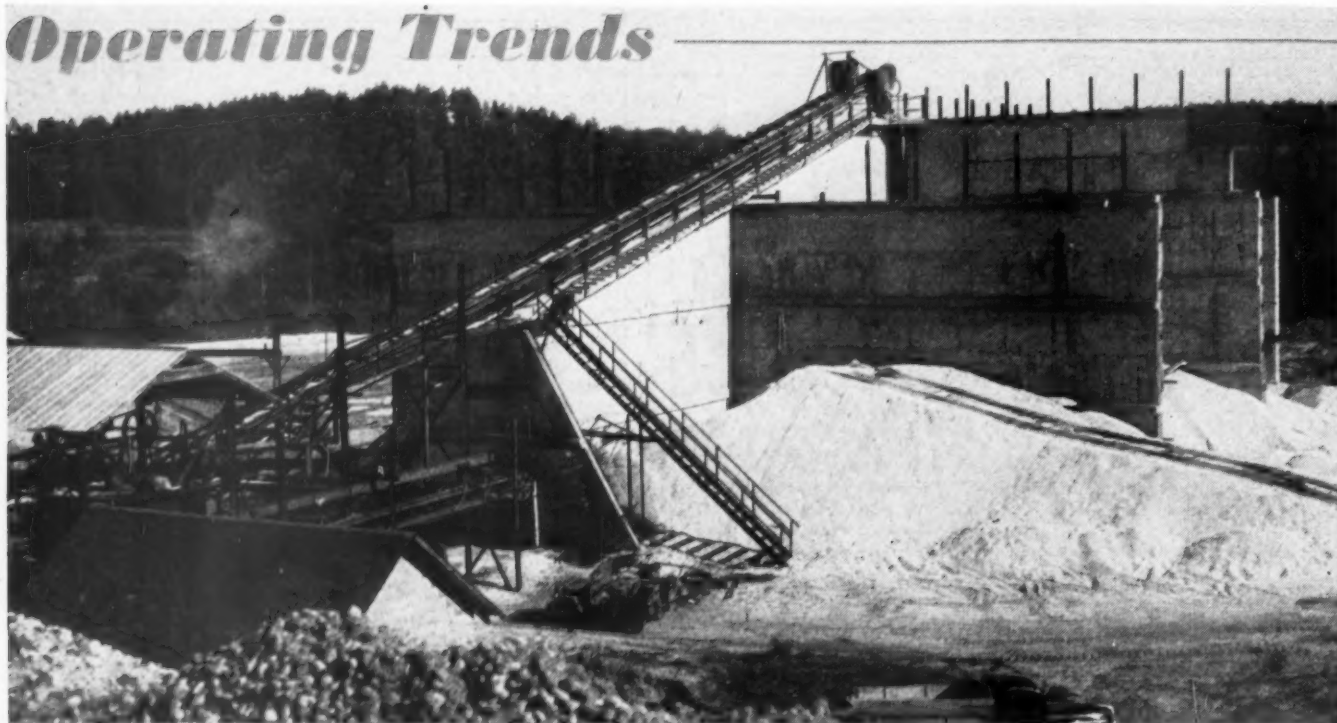
ter grinding. For a given set of burning conditions in the kiln, ultra-fine particles may undergo partial fusion or clinkering which results in a sticky mass of material that clings to the refractory lining. Repeated cycles of such activity are likely to create rings or other types of obstructions hindering the normal passage of the material through the kiln to an extent where periodic interruptions in the production of clinker are necessary to remove the obstacle.

Segregation of the raw slurry into fractions of varying chemical composition or particle size, both thoroughly undesirable conditions for the manufacture of cement that must conform to precise specifications on compound content of C_3S , C_2S , C_3A and C_4AF , is reportedly largely overcome by modern closed-circuit grinding practice. Premature clinkering of the more easily fusible fractions of the raw mixture is avoided. Segregation of chemical elements of the slurry is, of course, related to non-uniformity of particle size but it may be independent of this factor, arising either from the physical characteristics of each mineral as it occurs in each raw ingredient or from variations in the grindability of each element. Whichever of these inimical conditions applies to each case, modern milling methods as exemplified in the newest wet process cement plants, permit the sustained production of consistently high quality specification cement.

Single-stage wet raw grinding in a ball mill, although still uncommon in American cement plants, has, nevertheless, a definite place in medium sized works of approximately 2000 bbl. daily capacity. The higher capital investment for an additional ball mill as well as the increased cost of buildings, structures and foundations for the more complex two-stage arrangement is ordinarily not warranted in a plant of this rating since one single 9- x 13-ft. mill driven by a 500-hp. motor is capable of grinding its total

(Continued on page 148)

Operating Trends



Under the concrete auxiliary storage system is a reclaiming belt conveyor that supplies the loading tippie at Lilesville plant, B. V. Hedrick

North Carolina's Vast Untapped Mineral Resources

By H. E. SWANSON
and NATHAN C. ROCKWOOD

NORTH CAROLINA has a total length from east to west of 503 miles and lies across three geological provinces: The Coastal Plain, Piedmont Plateau, and the Appalachian Mountains. The rocks and minerals and their geologic relations in each province are distinctive. Stratigraphically the rock formations range from ancient pre-Cambrian crystallines of the Mountain Province to coastal and estuarine sands and gravels of Quaternary age, constituting the most easterly formations.

The Coastal Plain extends from the Atlantic Ocean on the east to the Piedmont Plateau on the west. Its area is about two-fifths of that of the State, exceeding 21,000 square miles and embracing wholly, or in part, 42 of the 100 counties. It is underlain by relatively young, loosely consolidated sediments that dip gently towards the ocean. The most important known mineral resources of the Coastal Plain are cement materials, clay, greensand, phosphate rock, sand and gravel, shell limestone, shell marl, and peat.

Piedmont Plateau

The central hill country, known as the Piedmont Plateau, attains a greater width in North Carolina than in the states to the north, and is also far more rugged. The western margin of this Plateau has an altitude of

1200 to 1500 ft. above sea level. At places precipitous spurs of the Blue Ridge Mountains project eastward and southeastward across the Piedmont section in irregular, straggling ranges. The area of this region is about 22,000 square miles; its altitude descends gradually from 1500 to about 300 ft., and averaging 1000 ft.

The Piedmont Plateau is largely underlain by very old, highly deformed crystalline rocks with smaller amounts of well consolidated, gently folding sediments. Algonkian rocks cover a large portion of the middle and lower Piedmont Plateau—the area known as the "Carolina Slate Belt"—and consist of a great series of schistose volcanics and slates.

The "Carolina Igneous Belt," composed principally of Carboniferous granite, occupies a nearly central position in the Piedmont Plateau and extends in a northeast-southwest direction from South Carolina on the south nearly to Virginia on the north. The width is 15 to 50 miles and it is traversed for most of its length by the main line of the Southern Railway. In addition to granite, this area is composed of diorite and there are numerous dikes of diabase and other

basic igneous rocks which penetrate the older rock.

The rocks of the western Piedmont are mainly of the pre-Cambrian Carolina gneiss formation, whose original nature is in doubt but it probably consisted of igneous and sedimentary rocks. The Carolina gneiss consists of a great series of interbedded gneisses and schists, chiefly composed of quartz, varying amounts of acid feldspar and either muscovite or biotite or both. At times either garnet or kyanite may be dominant minerals in the gneiss or schist. The rocks are light or dark gray, and have a fine grain, marked schistosity and, except for the larger crystals of kyanite and garnet, an even texture.

The Cambrian metamorphosed sediments form scattered belts and irregular areas in the upper Piedmont Plateau and Mountain sections of the State. In their present condition these formations are largely schist, slate, and quartzite. The most important known industrial mineral deposits of the Piedmont Plateau are barite, clay and shale, granite and gneiss, kyanite, kaolin, limestone, marble, mica, monazite, pyrophyllite, quartz, sandstone, sillimanite, slate, soapstone, spodumene, and trap rock.

Mountain Region

The Mountain region of North Carolina includes the Blue Ridge, the

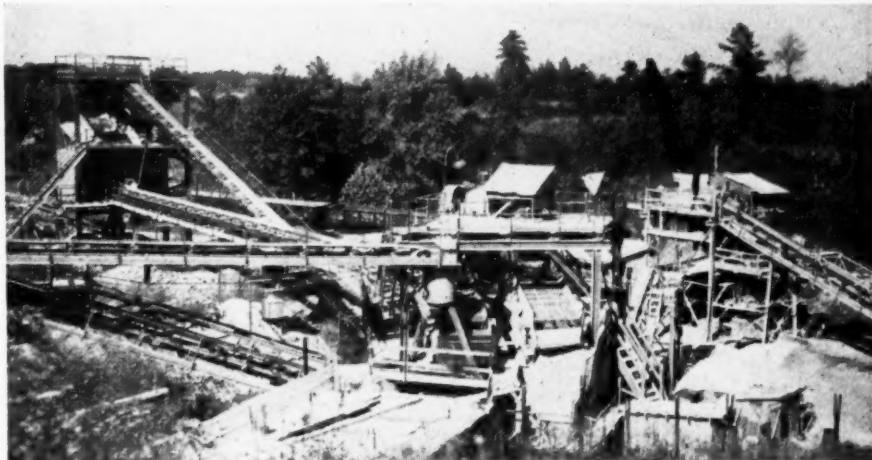
Great Smoky Mountains, and the country between, which is occupied by numerous irregular ranges, often separated by narrow valleys and deep gorges. The average altitude of this region is about 2700 ft. above sea level but the summits of many ridges exceed 5000 ft., and a considerable number of peaks tower above 6000 ft. Over the larger part of this region are to be found the older crystalline rocks, largely gneisses and granites, which are continuous with those of the western part of the Piedmont Plateau, and, like these, are considered of pre-Cambrian age. These rocks are often greatly folded and faulted and extreme metamorphism has frequently obscured or completely obliterated all traces of their original character. On the western and eastern borders of this mountain region, approximately along the line of the Blue Ridge and Great Smokies, are two narrow belts of younger rocks consisting of limestones, sandstones, shales, and conglomerates, and their metamorphic equivalents, crystalline limestones, slates, and quartzites.

Construction Materials

The different formations of the Mountain region have furnished suitable materials for construction and have in some cases been the host rock for economic mineralization, both metallic and non-metallic. However, the pegmatites and peridotites have been the source of the major mineral development.

Pegmatites are quite widespread throughout the Mountain region and even in some parts of the Piedmont Plateau. These rocks vary considerably in form, some being typically lenticular in shape and others more or less persistent in length. Although pegmatites may be one mile or more long and 100 to 300 ft. wide, they may be streaks a few feet, or even inches in length and width. Notwithstanding their deep-seated origin, they may pinch out in depth as well as laterally.

The pegmatites have been exten-



Overall view of Greystone Quarries Co. plant at Henderson

sively exploited and have been the source of the commercial mica and feldspar production of the State. Some of the quartz from pegmatites has been marketed and small amounts of beryl and columbite recovered as by-products. At least 44 different minerals have been reported from the pegmatites of the Spruce Pine District.

In addition to the typical occurrence of pegmatites a coarse-grained pegmatitic granite crops out over rather extensive areas in Mitchell, Avery, and Yancey counties. This material has been denominated "alaskite" and consists essentially of oligoclase, quartz, microcline, and muscovite, in order of abundance. Unlike pegmatites, in which irregular mineral distribution is the rule, the alaskite has a relatively uniform mineral composition and grain size. Upon weathering and decomposition the alaskite yields a kaolinized product, about 10 to 15 percent of which is recoverable as the residual china clay of the ceramic trade. A recent development has been the processing of the unkaolinized alaskite and the recovery of the feldspar by flotation.

Most of the peridotites and related magnesian rocks in western North

Carolina are confined to the belt of gneisses and schists that lies chiefly west of the Blue Ridge, and are arranged generally in a somewhat well-defined belt or belts within these gneisses. Many of the peridotites are of the dunite and saxonite type and contain essentially pure olivine with smaller amounts of associated primary minerals. In North Carolina and adjacent parts of Georgia there are at least 230,000,000 tons of high-grade forsterite olivine, averaging 48.09 percent magnesia. Recently a vermiculite industry has been developed to exploit this very unique group of minerals. For the past decade there has been a small but increasing production of olivine for the refractory trade and for making magnesium salts. Olivine is also regarded by many as a future ore of magnesium metal.

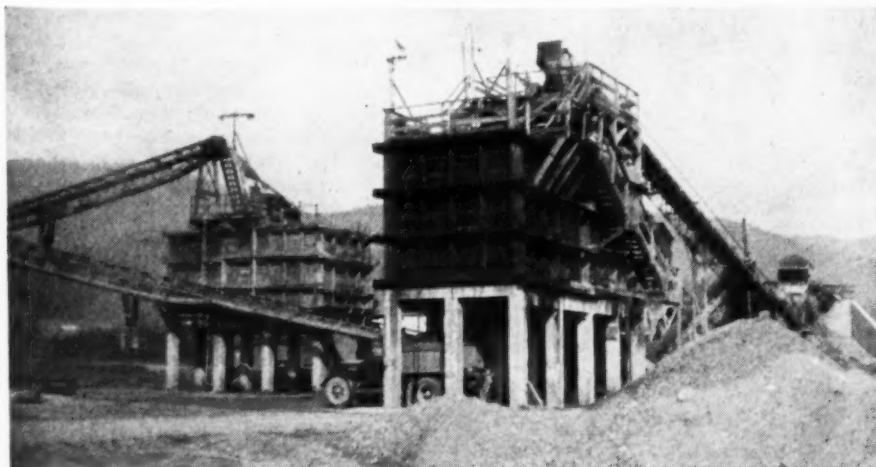
Sources of Data

The Mineral Resources Division of the North Carolina Department of Conservation and Development is actively engaged in a broad program of geologic research under the direction of Dr. Jasper L. Stuckey, State Geologist. Since 1936 the total value of the State's mineral production has more than doubled, and in 1944 established an all-time record.

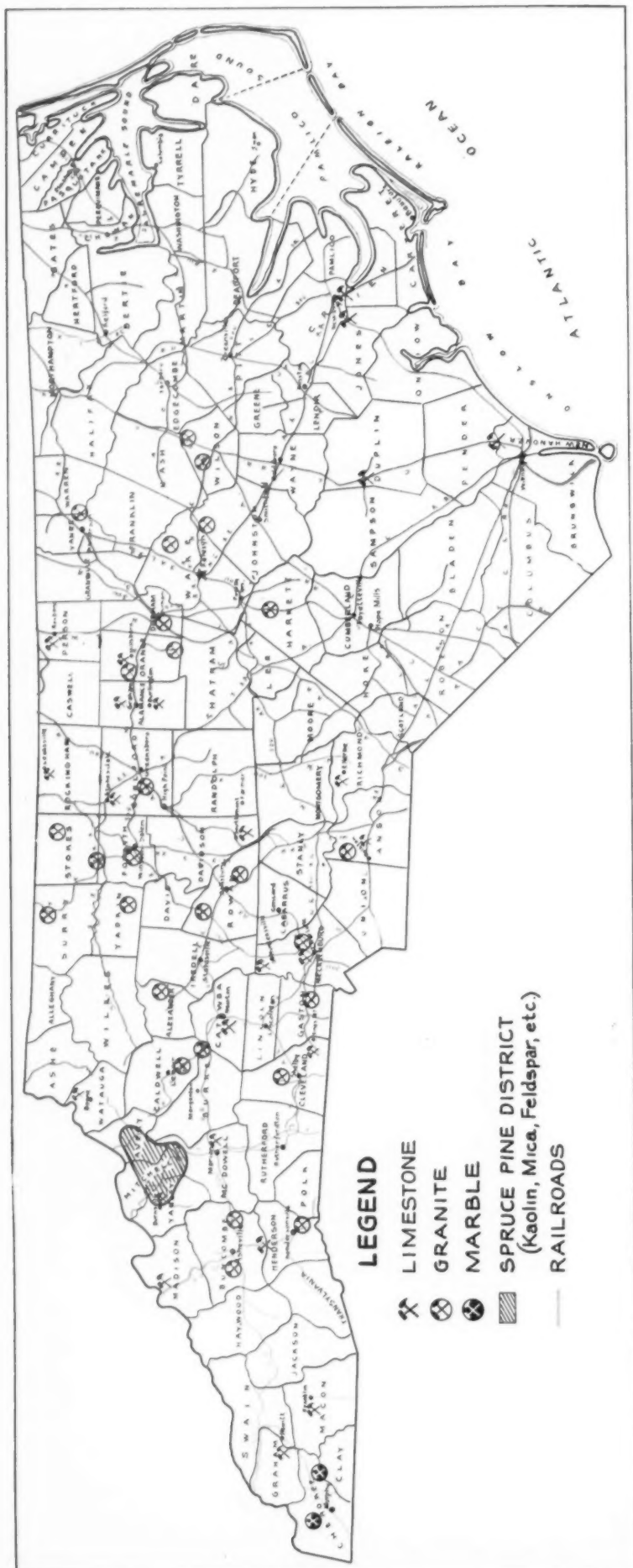
The authors are indebted to Thomas G. Murdock, assistant state geologist of North Carolina for the foregoing data and for the following articles on the rock deposits and on the sand and gravel deposits of the State.

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Final gravel sizing is completed above the bins to the right while sand is conveyed to bins at the left from classifier, Grove Stone & Sand Co., Swannanoa, N. C., plant



Map of North Carolina showing diversity of stone deposits

Commercial Stone Deposits of the State

GRANITE AND ALLIED ROCKS have, for many years, been a chief mineral asset of North Carolina. The State ranks first in quality and second in quantity only to Georgia in the Southeastern States. Quarries have been successfully developed from a location in the Coastal Plain near Wilson throughout the Piedmont Plateau and into the Appalachian Mountain region as far west as Hendersonville.

The workable granites of the Coastal Plain region are exposed in Anson and Richmond Counties along the South Carolina line, and in Wilson, Edgecombe, and Nash Counties to the east of Raleigh. The granites are essentially biotite granites and they show a considerable range in variation of color and texture, from light gray to pink with a very pleasing mixed yellowish and pink appearance in places.

Within the northeastern Carolina Granite Belt, comprising Wake, Franklin, Warren, Vance, and Granville Counties, extensive workable areas of different grades of granite are found, suited for all grades of work in which granite is used, except for the better grades of monumental stock. Although production has been reported from numerous localities in this belt, the principal quarries are at Rolesville and Wendell in Wake County and at Greystone in Vance County.

The Carolina Igneous Belt comprises the main granite belt of the State. Extensive areas of granite are exposed more or less in each of the 10 counties included within the belt and, in each county some stone has been quarried from time to time, usually to satisfy local demands. The principal development is to the east and south of Salisbury where the earliest quarrying was many years before the Civil War. The Balfour stone is produced in the Salisbury area. Important quarries for the production of crushed stone have been operated in the Greensboro, Burlington, Charlotte, Winston Salem, Reidsville, and Salisbury areas.

Massive granites are less abundantly distributed over the western Piedmont gneiss and granite belt than over some other parts of the State. The principal development within the belt has been in Surry, Wilkes, Alleghany, and Alexander Counties. The granites of the belt are all-biotite bearing, usually of light color and of medium texture. The most important commercial granite deposit in this belt, or even in the South, occurs in the northeastern section of Surry County near Mt. Airy. The famous "Mount Airy granite" is noted for its white color.

The Appalachian Mountain granite

area includes several of the mountain counties which lie between the Piedmont area and the Tennessee line. However, only three, Buncombe, Henderson, and McDowell, have shown a production during recent years.

In recent years there has been renewed interest in gneiss throughout the State.

Limestone and Marl

Limestone, marble, and marl, although not present in unlimited amounts, are important mineral resources. More than one hundred years ago farmers in the eastern section were using marl as a fertilizer. During the recent military construction in that region shell limestone was produced on a large scale from the Maysville-Belgrade area and from Warsaw. The marls and shell limestones of the New Bern area constitute a source of raw material for cement manufacture and it is possible that such a utilization will eventually result. The crystalline limestones and marbles of the western part of the State have found a ready utilization. During recent years quarries have been operated in the vicinity of Kings Mountain, Yadkinville, Newton, Fletcher, Marion, Ashford, Nantahala, and Hot Springs. A dolomitic phase is recognizable in several of the limestones exploited, and a pure dolomite deposit is found in Mitchell County. Marble has been quarried in Cherokee County for more than 35 years.

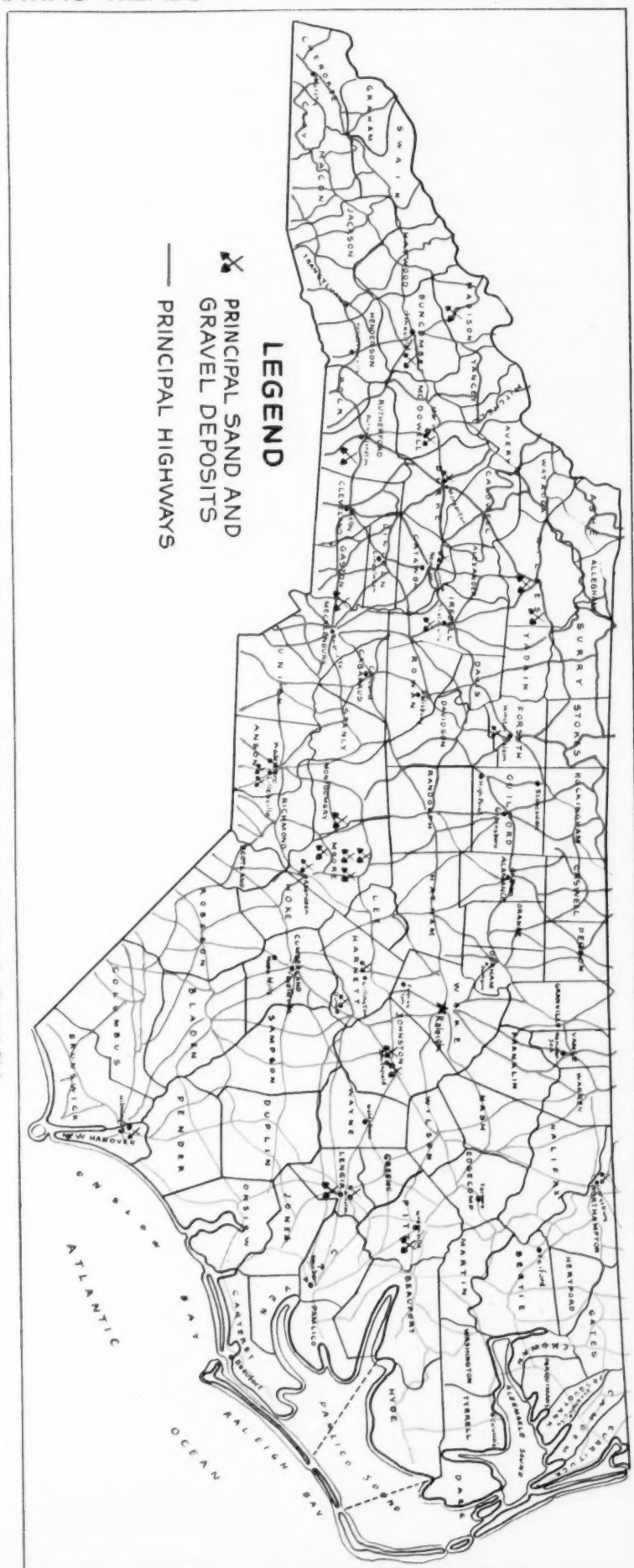
The exploitation of the sandstones in the State is limited wholly to the Triassic beds. These rocks are geologically and lithologically equivalent to the celebrated brownstones in states further north. During recent years a small amount of sandstone and quartzite has been used for crushed stone.

The granites of North Carolina, in addition to a wide utilization as a monumental and ornamental stone, have been used in the past as paving stones and blocks. Granite millstones, from the Salisbury area, were formerly an important product. During the war period when important grinding pebbles and mill liners were not available, the Salisbury granites were successfully used, the pebbles being formed by tumbling cubes of granite. A poultry grit by-product is made from the Mount Airy granite and has found wide acceptance.

Mica, Feldspar, Kaolin

Stone implements unearthed in old deposits show that, older even than Indian tradition, a race of men valued and mined for mica. Since 1903 North Carolina has supplied more than one-half of the total mica production of the United States. During World War II over 1500 mines and prospects produced strategic grades of mica and in 1943 the production of sheet mica amounted to 1,901,120 lbs., valued at \$1,772,324. The mica belt covers 20

Sand and gravel deposits of the State are largely found in the Coastal Plain



counties in western North Carolina and extends northeast and southwest across the State, reaching an extreme width of 100 miles. The most important mica producing counties are Ashe, Avery, Buncombe, Burke, Catawba, Cleveland, Gaston, Haywood, Jackson, Lincoln, Macon, Stokes, Transylvania, Watauga, Wilkes, Yadkin, and Yancey. The State is also the leading producer of scrap mica which is ground by wet or dry process. Plants are in operation near Spruce Pine, Franklin, and Asheville. In addition to a production of ground mica from the scrap obtained by processing sheet mica and mined for scrap, some mica schist is ground and the mica is recovered from kaolin-refining operations.

By 1915 the State had become an important producer and has furnished approximately half of all the feldspar mined in the United States since then. The production has been from pegmatite dikes widely distributed throughout the upper Piedmont Plateau and Mountain sections of the State. Production at present comes chiefly from Mitchell, Yancey, Avery, and Swain Counties. Grinding plants are located in the Spruce Pine district, and near Burnsville and Dillsboro.

North Carolina has for many years been the leading State in the production of true, non-plastic, residual kaolin. Approximately 100 deposits, mines and prospects have been described at one time or other throughout the Piedmont Plateau and Mountain sections.

Quartz occurs in veins of varying size at numerous localities in the Piedmont Plateau and Mountain section and also in pegmatite dikes in these regions. Small amounts of quartz were at one time mined in the Piedmont region and ground at Charlotte. Some quartz is also recovered as a by-product in feldspar mining and from sand and gravel washing operations.

Talc, Pyrophyllite, Etc.

Talc is found associated with the Murphy marbles as lenses and irregular bodies in Cherokee and Swain Counties. A recent intensive exploration campaign has led to the opening up of two new mines and a revival of operations at others. A high-grade material is produced which can be utilized for the various requirements of the market. Talc also occurs at many places in western North Carolina in association with the peridotites; Madison County has been the principal producer of this kind of talc.

North Carolina is the chief producer of pyrophyllite in the United States. This talc-like mineral which contains aluminum instead of magnesium has been known in Moore County since 1850; as a result of detailed geological investigation of the deposits, an important industry has been developed with mines in Moore, Randolph, and Alamance Counties.

The pyrophyllite occurs chiefly in acid tuffs of the "Carolina Slate Belt." The 1943 production was valued at approximately \$500,000.

Olivine production has been chiefly from Jackson and Yancey Counties. Although vermiculite deposits are known from Clay County northeastward to Avery County, the main development has been around Ellijay, Macon County, and Swannanoa, Buncombe County. There is an important production of anthophyllite asbestos in Yancey County and Avery County has likewise been active in this field.

Monazite was formerly produced from placer deposits, particularly in

Burke, Cleveland, and Rutherford Counties. Barite mining operations have been carried out near Kings Mountain and in Madison County. More recently spodumene-bearing pegmatites have been mined and milled near Kings Mountain. For some years kyanite was recovered from a large lens of kyanitic gneiss on Little Celo Mountain, near Burnsville, Yancey County, but the operation has now been suspended. A recent discovery of considerable importance is the occurrence of a belt of sillimanite schist extending from Rutherford County northeastward to the Yadkin River—a distance of about 95 miles.

Water-formed Deposits of SAND and GRAVEL

NORTH CAROLINA has a fair amount of sand and gravel in the water-formed deposits. These deposits are fluvial (streams), fluvio-marine (streams and sea), marine (sea), and lacustrine (lake) in origin. In the Mountain and upper Piedmont regions, deposits occur along the bottom or flood plain areas of the streams. In the lower Piedmont and Coastal Plain, deposits are rather widespread and roughly follow the old shore line. The best deposits are found in the beach terrace areas.

The commercial sand consists chiefly of quartz; the chief impurities are feldspar, mica, hornblende, and clay, the products of the weathering of the crystalline rocks, and organic matter. Most of the impurities are eliminated when the material is washed and screened.

The lower Piedmont and Coastal Plain gravels are composed of more or less rounded quartz pebbles which are derived from the quartz veins that cut the pre-Cambrian rocks to the west of the fall line (the western boundary of the Coastal Plain). The round form is due to the wearing caused by stream and wave action before and during deposition.

The gravels of the upper Piedmont and Mountain sections are composed of quartz pebbles and fragments of older crystalline rocks. These gravels are also more or less rounded and vary in size from coarse sand to large-sized boulders. These gravels must be crushed as well as screened before they are suitable for commercial use.

The most important sand and gravel deposits cross the State in a northeast-southwest direction and lie east of the fall line. The richest deposits occur where the larger rivers enter the ocean. Geologically they belong to a formation formerly known as the "Lafayette," of Pliocene age. This formation is well developed in parts of Anson, Richmond, Moore, Harnett, Johnston, Nash, Halifax and Northampton Counties. The important deposits are near the Pee Dee River in Anson County; well distributed over Moore County; along the Cape Fear River near Lillington in Harnett County; and, in Halifax and Northampton Counties along the Roanoke River. All of these deposits are of varying value and have been exploited to some extent.

The Anson County deposits occur in lenses and beds from 10 to 40 ft.



Constructed in part from surplus government equipment, the Becker County Sand and Gravel Co. Marion plant has an efficient setup. Conveyors to the right stockpile sized aggregates

thick, chiefly on the west side of the Pee Dee River, where the "Lafayette" formation overlies the crystalline rocks. In most places the deposits are covered by 10 to 20 ft. of overburden. They cover about 300 acres, part of which have been worked. The gravel is a high grade material consisting of quartz and quartzite pebbles mixed in sand and clay. The pebbles range in size from 3 in. in diameter down to fine sand. Six miles southeast of Wadesboro and one mile east of Bennett Station some small deposits, containing clay, sand, and gravel, are found. The average depth is from 2 to 6 ft. and covers about 30 acres. In the eastern part of the County small lenses of sand and gravel are found in the Coastal Plain formations, south of Wadesboro.

The "Lafayette" formation also contains extensive sand and gravel deposits in Moore County. One deposit has an irregular outline, varying in width from $\frac{1}{2}$ to $1\frac{1}{2}$ miles, and extends for four or five miles southeast of Carthage. The deposit consists of rounded pebbles of quartz and quartzite, and sand; it occurs as a covering 1 to 12 ft. thick along the tops of the highest hills and ridges. Deposits also occur west of Carthage. These range in width from $\frac{1}{2}$ to 2 miles and are about 10 to 12 miles long. They consist of semi-rounded and crushed quartz mixed with soil, sand, and clay, and occur along the tops of hills and ridges. In another area to the southeast of Carthage the gravel consists of white to orange-colored quartz and quartzite pebbles, well-rounded and mixed with a quartz sand. The gravel is clean and easily washed. In places the deposits run as high as 70 per cent gravel.

Cape River Deposits

In Harnett County, just east of the fall line and along the Cape Fear River, rich and extensive deposits occur. The greatest development has been between Lillington and the river. The deposits occur in hills and ridges and range in depth from 10 to 40 ft. They consist of gravel pebbles composed mainly of quartzite, quartz, and sand grains that are almost pure quartz. The gravel and sand are easily washed and cleaned. In many parts of the deposit the amount of foreign matter is not over 2 or 3 per cent. The washing operation produces concrete gravel, cementing gravel, roofing gravel, concrete sand, and filter sand. In some parts of the deposit an excess of clay makes those portions not of a washable grade. These, however, have been utilized for roads and streets, particularly at nearby Fort Bragg. Other deposits are situated southwest and northwest of Lillington. Some of these contain a high proportion of clay, but others contain a satisfactory material; all of these have a depth much less than that of the principal



Concrete sand, occurring in a wind-blown deposit at Aberdeen, contains no gravel and is graded without extensive processing to specifications for concrete aggregate by Bryan Rock & Sand Co.

deposit between Lillington and the Cape Fear.

Johnston County is crossed by the "Lafayette" terrace formation and deposits of gravel are found along the Neuse River just west of Smithfield and near Selma. Good deposits of sand occur about two miles west of Selma and about one mile east of the Neuse, on a low flat ridge that rises a few feet above the river valley. A foundry sand is found there, overlain by 12 to 15 in. of soil. Below this is a bed of filter sand which at a greater depth grades into a clayey gravel. About one mile west of Selma is a very good gravel deposit. The geology there consists of shallow deposits of sand, clay, and gravel, with exposures of elder basement rock. This gravel has been used as railroad ballast; the more sandy, porous grades were sought and the clayey grades were left in the pit. The material is mainly quartzitic and quartz and ranges in size from one inch down to a coarse sand. Some of the clayey gravel has been used with considerable success in local road construction. The gravel deposits around Smithfield are shallow—3 to 10 feet deep—but they are of a good quality and are locally important.

Lenoir County has been extensively prospected for sand. The deposits are rather large and rich. The Neuse River valley is about three miles wide in the vicinity of Kinston and is filled with plenty of good sand which yields several grades, ranging in size from small gravel to ordinary plaster sand. It is angular and remarkably free from mica and organic matter. A number of sand pits have been in operation in the Kinston area; one of these covers 3 to 4 acres and has an average depth of 20 ft. The finer product has found a utilization as sheet asphalt filler.

Old River Valley Deposits

In Edgecombe County sand and gravel occur along the streams and in the old stream valleys. The most important deposits occur along the Tar River. Near Tarboro where this stream makes a long bend there is a

sandbar which supplied a great deal of high grade sand. At each freshet the sandbar is rebuilt thereby effecting a continuous supply of sand. Also just to the southeast of Tarboro a very good building sand is found. The sand is composed chiefly of quartz, very clean and free of mica. One mile north of Tarboro on the inside of a bend of the Tar River a very extensive deposit of a clean, hard, and angular sand is found, ranging in depth from 4 to 10 ft. and covering several acres.

Halifax and Northampton Counties have rather extensive but not deep deposits of gravel. The "Lafayette" formation is rather well marked in the section around Thelma and near Weldon. In this area and especially along the old valley of the Roanoke River there are large deposits of gravel. Near Thelma there are gravelly hills that are parallel to the river valley. The topography is rolling to hilly and is deeply cut by several small streams. The gravel shows a depth of from 15 ft. on the tops of the ridges to 4 ft. along the hillsides and valleys; it consists of well-rounded quartz and quartzite pebbles in a matrix of sand and clay. Although there are several other localities in these counties the most important is near Garysburg where the gravel occurs along a rolling and hilly area on the north edge of the Roanoke River Valley. A modern washing plant has been in operation there for some years. The gravel ranges in depth from 15 to 20 ft. and consists of both sand and clay gravel. The gravel itself is a quartz-quartzite material ranging in size from 3 in. in diameter down to coarse sand. The average size is from $1\frac{1}{2}$ to $\frac{1}{4}$ in.

Wake County has little gravel and sand. A few small deposits are found along the fall line and near streams. There is one good deposit of crushed quartz near Garner. In the southwestern section are deposits of gravel that are of local importance. None of these are great in extent or depth. The gravel consists mostly of a mixture of water-worn pebbles in clay. The pebbles are quartz and quartzite,

HIGHWAY SPECIFICATIONS

comprising an excellent road material.

In the western counties there are no extensive sand and gravel deposits, but there are many local ones which may be worked commercially. The gravel deposits of these counties occur principally along the main stream valleys and in the stream terraces, caused by the streams meandering across the broader valleys. The most outstanding deposit is in Buncombe County near Swannanoa, where a modern plant of the Grove Stone and Sand Co. has been producing sand and gravel for many years.

Stream Gravel Deposits

Most of the counties along the foot of the Blue Ridge Mountains, as Polk, Rutherford, McDowell, Burke, Caldwell, Wilkes, and Surry, have stream gravel deposits. These gravels are composed of quartz, quartzite, and rounded fragments of the old crystalline rocks. They range in size from sand to large boulders. In most of the deposits the gravel has to be crushed, washed, and screened before being suitable for the various trades. No real good quartz gravel deposits, as those just below the fall line, are found. Only occasionally are deposits found where the gravel is uniform. As a result of this condition the deposits have not been worked to any extent. Then too there are so many exposures of rocks of different varieties which are easily quarried for the various trades.

Along the Yadkin River from the boundary of Forsyth County westward to North Wilkesboro and beyond there is an abundance of sand which has been worked at several places. Most of this sand was put down in the 1916 flood. Much of it is too fine for ordinary concrete use. However, locally, there are deposits that are very good. Besides concrete sand, much fine sand for sheet asphalt and filler can be obtained.

In the mountain district some exploitation of commercial sand and gravel is in Burke County, especially along Silver Creek; on the headwaters of this stream a great deal of quartz is mixed in the gravel but no true quartz gravels are found. In some places the material is quite angular although in others it is well rounded. Other localities, where the most important deposits occur, include along the Catawaba River in Iredell County, and between Old Fort and Marion. Rounded fragments of crystalline rocks constitute extensive deposits along the river bottoms between the Broad and Second Broad Rivers in Rutherford County.

For the ten year period of 1935 to 1944, inclusive, the average annual production of sand and gravel in North Carolina was 2,659,356 short tons; the average annual value was \$1,265,736. The maximum production was in 1941 and amounted to 4,473,297 short tons, valued at \$2,345,165.

NORTH CAROLINA is fortunate in having practically no seriously deleterious substances in sources of aggregate supplies. Clean, siliceous sands and crushed granite or similar igneous metamorphic rocks form the bulk of commercial aggregate production. Crystalline quartz and quartzite gravels are also produced to the extent of about 25 per cent of the total coarse aggregate used. There is an appreciable amount of limestone but practically no slag used in highway construction. The specifications, however, cover all three types on an equal basis.

All portland cement concrete is designed by the laboratory according to strength specifications; variations in quality of aggregates show up as differences in cement factors for various combinations of aggregates. In order to assure 600 p.s.i. modulus of rupture at 14 days for pavement concrete, cement factors range from the specified minimum of 1.40 to a maximum of 1.75 with the average about 1.55 bbl. per cu. yd. The maximum Los Angeles abrasion test per cent of wear allowed is 55, although if satisfactory service performance records are available the per cent of wear requirement may be waived. One granite having a

granite as a result of transportation, storage and handling. It is not an adherent coating after the aggregate is dry and to avoid possible misunderstanding the 200-mesh sieve test is included.

Mild climate renders the need for a soundness test less important than in states farther north and, furthermore, available aggregates in North Carolina have been found to be highly resistant, with few exceptions, to the sodium sulphate test. Therefore, a maximum weighted average loss of 15 per cent after 10 alternations has caused no concern to the producers. Here, again, satisfactory service records may be accepted in lieu of compliance with the durability requirement.

Separated Coarse Sizes

After a lapse of more than 10 years North Carolina has returned to the use of separated sizes of coarse aggregate for concrete pavement. Standard sizes Nos. 1 and 3 in the accompanying tabulation are combined to yield a grading well within the limitations for No. 2 size. This is done by weighing at the batching plant on the job. The No. 3 size aggregate is used for structural concrete also, and the No.

PERCENTAGE OF TOTAL BY WEIGHT PASSING

| Standard Size No. | 2½-in. | 2-in. | 1½-in. | 1-in. | ¾-in. | ½-in. | ¾-in. | No. 4 | No. 8 |
|----------------------|--------|--------|--------|--------|--------|-------|-------|-------|-------|
| 1 | 100 | 90-100 | 35-70 | 0-20 | ... | ... | ... | ... | ... |
| 2 | 100 | 95-100 | ... | 35-70 | ... | 10-30 | ... | 0-5 | ... |
| 3 | | | 100 | 90-100 | ... | 25-60 | ... | 0-10 | 0-5 |
| 4 | | | | 100 | 90-100 | ... | 20-55 | 0-10 | 0-5 |

per cent of wear as high as 65 has been found to give excellent results in concrete. A maximum percentage of wear of 40 is applied to slag.

In addition to the abrasion requirement the following maximum limits for deleterious substances are imposed:

| | |
|--|------|
| Soft, friable or partially disintegrated particles, per cent by weight | 3.0 |
| Clay lumps, per cent by weight .. | 0.2 |
| Material finer than No. 200 sieve, per cent by weight | 0.5 |
| Flat or elongated particles, per cent by count | 10.0 |

Flat or elongated particles are those whose greatest dimension is more than five times the average thickness of the particle.

Although a clause is included in the text requiring that all aggregate having a per cent of wear of more than 30 must be washed to remove clay, loam, dust and similar adherent fine material, the limitation to 0.5 per cent finer than No. 200 sieve has been added to take care of the dust which frequently occurs in crushed soft

4 size for thin sections and for seawater concrete.

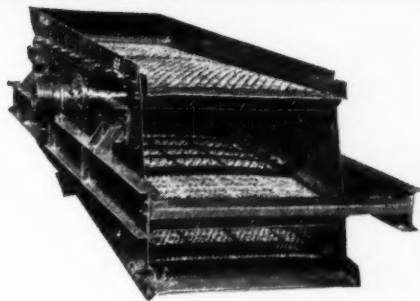
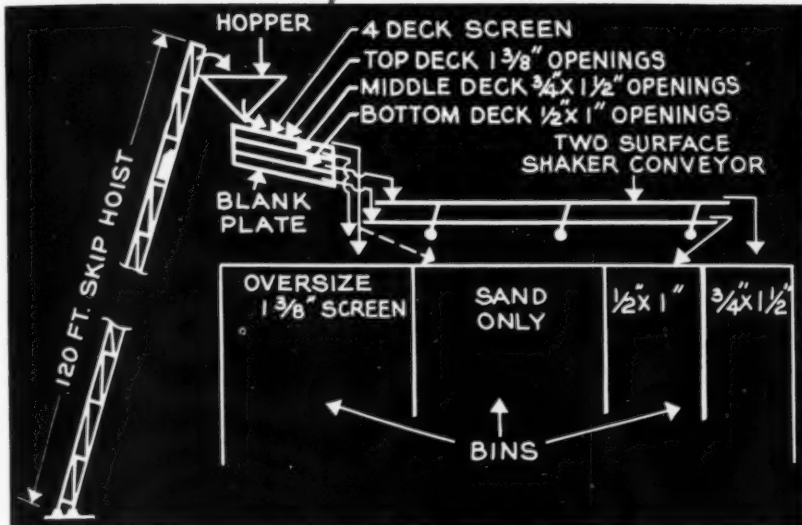
Sand Specifications

Fine aggregate may be natural sand, processed stone sand, or a combination of 20 per cent stone screenings with natural sand. The same requirements for quality and grading apply to all. However, if 20 per cent stone screenings are added it must be done by weighing at the time of proportioning. Natural sand alone is used almost exclusively.

A.A.S.H.O. Method T-71 is specified for determining quality and a strength ratio of not less than 95 per cent must be developed in compression tests at 3 days using Type III cement or 7 days using Type II cement. Fine aggregate failing to meet this requirement for structural strength may be used with the approval of the Chief Engineer provided that when compared in concrete beam and compression specimens with a sand of approved grading and quality, the quality of the resultant concrete at 14 days is found to be at least equal

(Continued on page 132)

A **tough** SCREENING PROBLEM



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OPERATING TRENDS

to that of the concrete in which the approved sand was used.

Deleterious substances in fine aggregate are no more of a problem than for coarse aggregate in North Carolina. Clay clumps are limited to 1.0 per cent maximum, and soft, friable, micaceous, partially disintegrated, or coated grains are limited to 1.0 per cent total also. Mica is the most objectionable constituent of some of the fine as well as coarse aggregates occurring in the mountainous section of the State. The structural strength mortar tests usually eliminate the undesirable sands without necessitating the more tedious particle counts involved in the determination of deleterious substances referred to above.

Durability by means of the sodium sulphate soundness test requires not more than 15 per cent loss in 10 alternations. There is no alternative for this requirement; but, since nearly all of the available satisfactorily graded sand is practically pure quartz, the test is seldom made, and when it is performed shows negligible loss.

Organic impurities are indicated by the colorimetric test. Should a test show a darker color than that of a preliminary or previously approved sample, use of the sand is withheld until its quality is checked by means of the mortar strength test.

Sand Gradation

The fine aggregate gradation shown in the tabulation has been selected after many years' experience and consideration of the naturally available

PERCENTAGES BY WEIGHT PASSING

| Size Designation | 1 1/2-in. | 1-in. | 3/4-in. | 1/2-in. | 3/8-in. | No. 4 | No. 16 | No. 200 |
|------------------|-----------|--------|---------|---------|---------|-------|--------|---------|
| 10 | 100 | 95-100 | 30-50 | 0-10 | ... | 0-2 | ... | 0-1/2 |
| 11 | | | 100 | 95-100 | 75-90 | 25-50 | 0-4 | 0-1/2 |
| 11-A | | | 100 | 95-100 | 75-90 | 20-35 | 0-4 | 0-1/2 |
| 12 | | | | | 100 | 25-75 | 0-4 | 0-1/2 |

materials, keeping economy in mind. Commercial deposits seem to fall in two classes: those having insufficient minus 50-mesh material, and those having an excess. Although it is felt that the most desirable percentage passing the No. 50 sieve, in a sand uniformly graded from about the No. 8 sieve down, is between 17 and 22 per cent, there is not enough information to show that it would be economically advantageous to require the blending of fine aggregates to give a product within such a narrow grading range.

Correction of a deficiency in amount of material passing the No. 50 and/or No. 100 sieve is provided for in the specifications which permit the addition of an inorganic fine material satisfactory to the Chief Engineer, or sands of acceptable quality may be blended to give specification grading.

Uniformity of workability of concrete from batch to batch during construction is highly desirable and difficult to maintain. Working towards this end it is required that the grading of the fine aggregate being furnished to any one job must not vary in fineness modulus by more than 5.0 per cent from that of a preliminary sample submitted by the contractor as representative of that which it is

proposed to ship. The average fineness modulus of sand produced in North Carolina is about 2.50, therefore shipments of such sand would have to stay within the range of 2.42 to 2.58. To keep within these limits it is best, under normal conditions, to stockpile the sand in large amounts for approval before shipping and this has the additional advantage of maintaining a uniform and low moisture content.

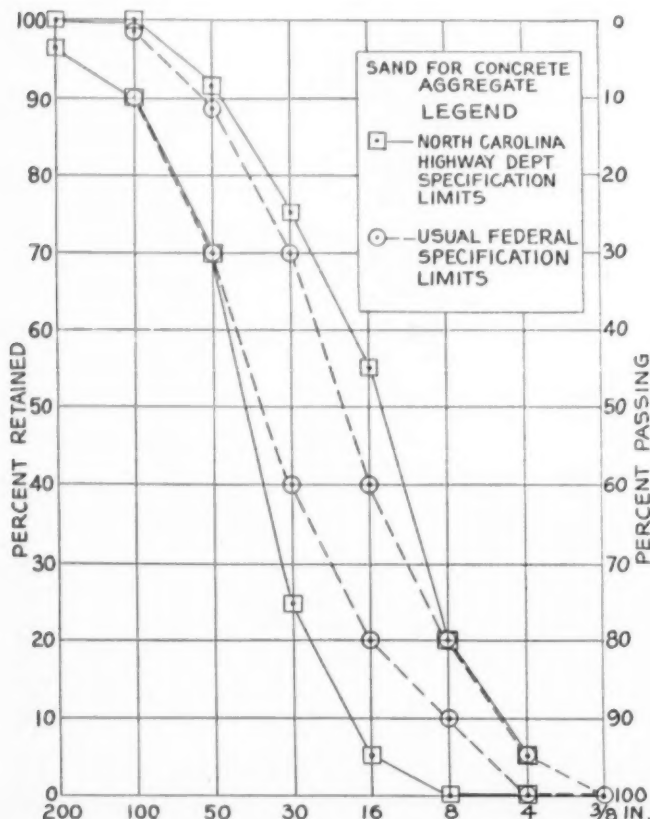
| Sieve Designation | Percentages by Weight Passing | |
|----------------------|-------------------------------|------|
| | Min. | Max. |
| No. 4 | 95 | 100 |
| No. 8 | 80 | 100 |
| No. 16 | 45 | 95 |
| No. 30 | 25 | 75 |
| No. 50 | 8 | 30 |
| No. 100 | 0.5 | 10 |
| No. 200 (By washing) | 0 | 4 |

Cement Specifications

Type II portland cement is required for all pavement and structural concrete except where Type III is called for in the special provisions of the contract. Exceptions to the A.A.S. H.O. Specification M-85 requirements are that the maximum per cent of tricalcium silicate in Type II shall be 60, and the average specific surface value for Type III cement shall be not more than 2700.

Bituminous surface treatment constitutes a large portion of road construction in North Carolina. Crushed stone or slag for the mat course may have a Los Angeles abrasion per cent of wear up to 50, and gravel, either crushed or uncrushed may go up to 55 per cent wear. The seal aggregate, whether stone, slag, crushed or uncrushed gravel, is limited to 50 per cent wear. Slag is required to have a weight per cubic foot of at least 70 lbs.

Grading requirements for bituminous surface treatment are the result of years of experience and cooperation between the highway engineers and the aggregate producers to obtain the best results with the greatest economy. Size No. 10 is used for the first or mat course and sizes No. 11 or 12 for the second course or seal. The size to be used for seal depends on the type and quality of aggregate. No. 11 is used when the aggregate is crushed stone or slag and the per cent wear is 35 or more. For gravel, and for stone or slag having a per cent of wear of less than 35, the No. 12 size is required. The No. 11-A size shown in the table is used in retreatment work by State Maintenance forces for all types of aggregates having a per cent wear of more than 35, otherwise No. 11 size is permitted.



State sand specification limits compared with Federal specifications. Note 0.5 per cent finer than 200-mesh specification which is provided to take care of the dust which frequently occurs in crushed soft granite as a result of transportation, storage and handling.

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PLANT PRACTICES

Sand and Gravel Plants

THE CHIEF IMPURITIES in North Carolina sands and gravels consist of clay, mica, and organic matter which are eliminated to a sufficient degree so that the material will readily meet State Highway Specifications. Scrubbers, blade mills, picker belts, and large quantities of water are some of the aids used to remove impurities.

Gravels of the lower Piedmont and Coastal Plain deposits are composed of the more or less rounded quartz pebbles which originated in the quartz veins that cut the Proterozoic rocks which lie to the west of the fall line. The gravels of the upper Piedmont and Mountain sections are composed of quartz pebbles and fragments of the older crystalline rocks, and are also more or less rounded and vary in size from coarse sand to large-sized boulders.

In the vicinity of Lilesville, two plants are producing sand and gravel, working a deposit that contains gravel with an almost pure silica content. Tests have shown that this gravel runs better than 97 per cent SiO_2 , making it excellently suited for the chemical and allied industries. These gravels also come well within the specifications when subjected to the Los Angeles rattler tests. Sieve analyses of the sand have demonstrated that it is of uniform gradation, with about 15 per cent passing the 50-mesh and between 1 and 4 per cent passing the 100-mesh. Consequently, the only real problem encountered is the large amount of clay in the deposit, necessitating considerable washing and scrubbing.

Heavy Clay Removal

Introduction of a blade mill and preliminary scalping of dry material prior to the addition of water has helped the W. R. Bonsal Co. to produce a cleaner product as well as provide a more uniform delivery of raw material to the plant. Prior to 1946, the raw product delivered from the pit

was sluiced with huge amounts of water to the plant. The new installation, consisting of a hopper, belt conveyor, screen, and blade mill, has increased production to a marked degree. The blade mill has done much to assist in the production of a product relatively free from deleterious materials.

Briefly, the flow of material through the plant is as follows: sand and gravel received from the deposit in side-discharge cars is dumped into a hopper equipped with a feeder. The feeder governs the flow to a long belt conveyor that discharges over a double-deck screen where sand is removed, the gravel entering the blade mill from the screen. Water is added at the screen, and the sand together with the water is laundered to a rake classifier. The gravel in the blade mill receives just enough water to make the pulp fluid, and discharges to a flume where large quantities of water are added to sluice it to a scalping screen. Clay balls not disintegrated in the blade mill are picked at this screen as well as on a picker belt that follows the screening operation. Plus 2-in. gravel is crushed in a Symons cone crusher, the product retained on the lower deck of the screen (plus 4-mesh) goes to the picker belt, and the minus 4-mesh launders to the rake classifier. From the cone crusher, gravel returns to the flume feeding the screen by bucket elevator.

Discharge from the picker belt is to a long belt conveyor that delivers the gravel to a triple-deck screen superimposed above storage bins. Under the storage system is a recovery belt conveyor that delivers desired sizes to a rinsing screen at a loading tippie. Sand reclaimed in the rake classifier discharges directly to railroad cars.

Also operating a plant in this vicinity is the B. V. Hedrick Co., featuring a wet process of delivery of the raw material to the plant. The deposit here, as well as at the plant

previously described, contains about twice as much gravel as sand and about 15 to 20 per cent of clay. The product delivered in Austin-Western side-discharge cars from the pit is dumped into a long, narrow, 85-cu. yd. capacity hopper where water at the rate of 2500 g.p.m. is added to sluice the pulp to a rotary screen for preliminary sizing. Included in the plans for 1947 is the installation of a blade mill between the hopper and the rotary screen to assist in disintegration of clay balls.

Washing in Transit

Oversize from the rotary screen is crushed in two Tel-smith gyraspheres and elevated to final sizing screens above storage bins. Sand and gravel passing the rotary screen is rescreened by another rotary screen where the oversize (plus $\frac{1}{2}$ -in.) is sent to final screening operations, and the minus $\frac{1}{2}$ -in. product is rescreened on a double-deck vibrating screen where sand is removed, the plus $\frac{3}{4}$ -in. gravel is conveyed to final screens and the other product obtained from the double-deck screen is conveyed to a stockpile.

Sand is laundered to a sand drag that reclaims the product for direct delivery to railroad cars. When this drag is not operated, the pulp discharges through an opening in the bottom of the drag, to a concrete overflow settling tank. Sand is reclaimed from the sump by shovel for stockpiling.

Under the screens that produce the finished sizes are storage bins. Under these bins is a recovery tunnel housing a belt conveyor that delivers desired sizes to a loading tippie. Discharge from this conveyor may be diverted to another belt conveyor that feeds an auxiliary storage area. Under this area is another belt conveyor that returns the gravel to the loading tippie.

In addition to the thorough washing given the material, and the blade mill that will be installed in 1947, this plant also employs inspectors at the flume and at the chute feeding the crushers to pick clay balls.

Processing Clean Material

Working a deposit in the Lafayette formation of Pliocene age, Bryan Rock and Sand Co., Inc., is producing sand and gravel consisting of particles of almost pure quartz at its Bunn-level plant. To remove the small amount of clay and organic matter evident in the deposit, the plant is equipped with a double screw washer. The product is also rinsed before delivery to trucks.

Two 15-cu. yd. Euclid trucks haul the material from the deposit to the plant where they discharge through a grizzly spaced at 6-in. centers into a hopper equipped with a chain feeder. Less than 2 per cent of the product delivered to the plant is above 6-in. size, and this oversize is cast off to



General view of W. R. Bonsal Co. plant at Lilesville. The new installation is shown to the right and the final screening station is to the left

(Continued on page 138)

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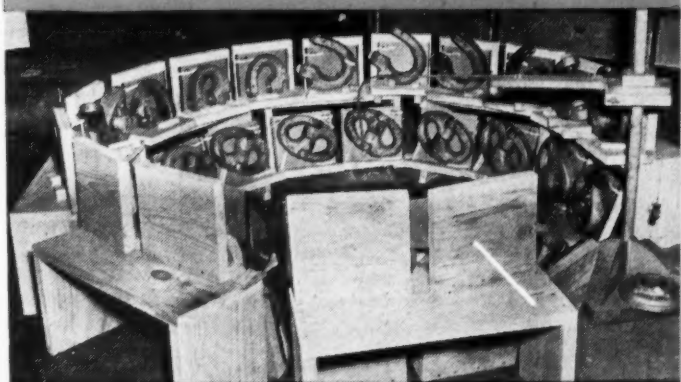
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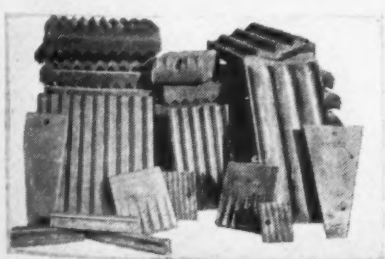
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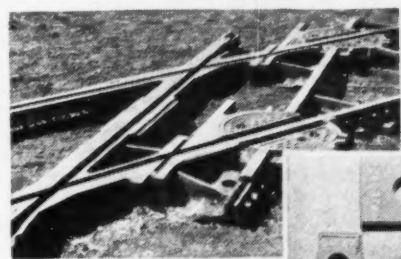
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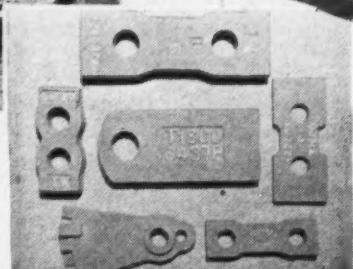
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Operating Trends

(Continued from page 134)

the side as a waste product. From the hopper, the sand and gravel is conveyed to a distributing box at the top of the plant where it is lubricated with water at the rate of 800 g.p.m. The product discharges to a triple-deck screen equipped with spray nozzles. Plus 1½- or plus 2½-in. gravel retained on the top deck is crushed in a reduction crusher and returned to the screen by a belt conveyor in closed circuit. The size of gravel to be crushed is determined by the type of material desired. The lower deck of the screen removes the sand which launders to a stockpile for drainage. Gravel retained on the two lower decks enters the double-screw washer, where clay and other impurities are removed to an extent that the final product contains less than 2 per cent of impurity.

Gravel from the washer is conveyed to final screening operations above storage bins. Under the bins is a recovery belt that delivers the product to a rinsing screen above a truck loading bin. Trucks deliver gravel and sand to a ramp at Bunnlevel where railroad cars are loaded.

Processing Pit-Run

Pit-run sand is produced at three plants in the vicinity of Aberdeen, where a wind blown deposit occurs in an almost perfect gradation. The deposit averages about 20 ft. in depth and is covered with a negligible amount of overburden. The only equipment necessary to reclaim this sand is a shovel. Sand is loaded to trucks or to cars on spur tracks placed at the deposit. The gradation varies slightly in different parts of the deposit, so that concrete sand, masons' sand, and fertilizer filler can be reclaimed from the various locations. Some tests have been made with the prospect of utilizing this sand as foundry or glass sand, but no definite steps have been taken yet in that direction. Bryan Rock and Sand Co., Inc., Pleasants Sand and Supply Co., and Aberdeen Sand Co. are the three producers working this area.

Pumping Operations

Bryan Rock and Sand Co., Inc., also operates a pair of plants at Goldsboro where the deposit is pumped to the plants. The two deposits worked are located within 1000 ft. of each other, and are identical in operation with the exception that one uses an 8-in. pump on the dredge boat and the other has a 6-in. pump. Sand is the principal product, with about 5 per cent of pea gravel also reclaimed. The pumps deliver the product to screens above bins where the sized product is delivered to railroad cars.

Working a deposit in the foothills of a range of mountains that includes Mt. Mitchell, highest peak east of the Rockies, the Grove Stone and Sand Co. at Swannanoa is producing sand and gravel at a plant recently rebuilt

and modernized to triple production capacity. The deposit contains about 80 per cent gravel and contains a fairly high percentage of large boulders. These boulders are cast aside during loading operations and are drilled, loaded with dynamite, and shot.

Capacity of the primary crusher, a 24- x 36-in. Pioneer jaw, is such that a portable plant has been installed to handle part of the load. After primary crushing, the product is split to the main plant and to the portable plant. Washed products are produced in the main plant and crusher run material for secondary roads is produced at the portable plant. The split discharge can be regulated to send any desired amount to either plant.

The main plant consists of a Tel-smith super scrubber where clay is disintegrated; a triple-deck screen for preliminary sizing; two secondary crushers; and a pair of final sizing screens. Sand is reclaimed in a pair of Tel-smith double-screw washers placed in series. The impurities, consisting of clay, mica, and organic matter are removed by this double process of washing, and the sand from the last washer is elevated by a pair of belt conveyors to storage bins. A screen above the bins is available for the production of masons' sand when desired.

Portable Unit Operation

Recently placed in operation is the sand and gravel plant of Becker County Sand and Gravel Co. near Marion. This plant consists almost entirely of surplus Government equipment that was used in the Pacific during the war. The deposit consists of 80 per cent gravel and 20 per cent sand, with a small amount of clay impurity.

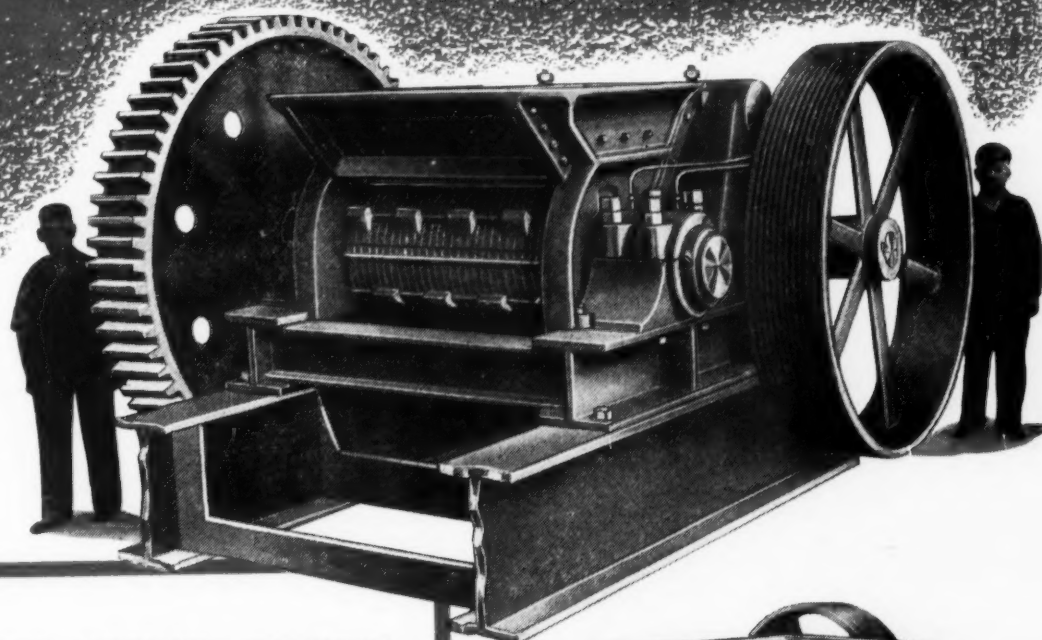
The plant actually consists of separate units melded together to form



Sand and gravel dumped into a hopper from side-discharge cars at the Lilesville plant of B. V. Hedrick is sluiced with huge quantities of water to primary screens

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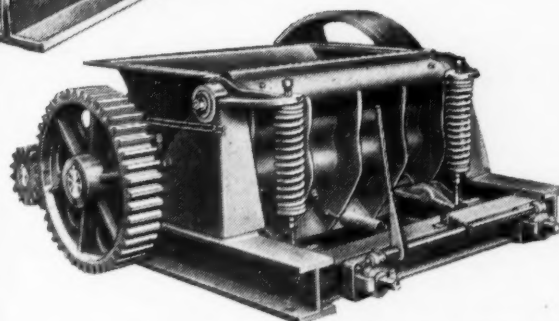
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(Continued from page 138)

a single plant. After primary scalping and crushing, the product is conveyed to a Pioneer portable plant. Gravel for secondary road surfacing is removed and the balance of the material is conveyed to a second portable plant where washing and final sizing is made. This second unit includes a rotary screen with a scrubber section to break up the clay. Belt conveyors elevate the separate products to discharge points above outside storage bins. Under these storage piles is a reclaiming tunnel with a belt conveyor for transferring sized aggregates to a loading tippie.

Sand is reclaimed in a sand drag and moved to storage by belt conveyor.

Crushed Stone Plants

CRUSHED STONE aggregates for concrete construction in North Carolina consist principally of granite. Some limestone is available, but at present there are only two major plants that process the stone for concrete aggregate. There are a large number of dimension stone quarries working granite and allied rock deposits, that provide a small source of crushed stone from the tailings obtained from the principal operations. The North Carolina Granite Corporation at Mount Airy processes tailings into chicken grits and a profitable business has been established with this side line. At Salisbury, the Harris Granite Quarries Co. in addition to the major line of "Balfour Pink" granite monumental stone, also processes tailings into mill liners and pebbles for the processing of feldspar, silica sand, and other minerals.

The granites, limestones, and allied rocks quarried for concrete aggregate are all well within specifications of the State Highway Department. Los Angeles rattler tests made on all stone average about 35 per cent, with a specification allowing 55 per cent. There is one notable exception, where one quarry produces a stone that has a percentage of wear of 60, but performance records have shown that this product is excellently suited for a concrete aggregate, therefore, as listed in the Highway Specifications, the Los Angeles test is waived.

While limestone is produced in some quantity as a construction aggregate, no market has been exploited for agricultural limestone since the carbonate neutralizing value is insufficient. Tests have shown that it will average about 55 per cent, which is too low for the efficient feeding of soils. There are, however, some areas where a high calcium limestone is to be found but none has been worked to any appreciable degree as yet.

Quarrying operations are somewhat

similar at the many quarries located in North Carolina. The majority have a primary crusher in the quarry with belt conveyor transportation to the main plant for final crushing and screening. Mining has been found unnecessary due to the small amount of overburden.

The Bryan Rock and Sand Co. plant at Rolesville produces concrete aggregates, ballast, and other commercial sizes, including a minus 3/16-in. screenings for use as asphalt filler and concrete-block aggregate. Much of this fine product was used during the war in the construction of landing fields and air ports. Prior to the war, there was little market for the fines, and consequently a huge stockpile was built up. With the discovery of new markets, this stone, formerly a waste product, is much in demand.

Stone Washing—Surge Storage

The Rolesville plant processes a granite from a huge quarry. Recent installations have materially increased production and the addition of new quarry haulage units have provided a more uniform flow to the plant. Briefly, the stone is crushed in the quarry, elevated to a scalping screen where oversize is recrushed in a pair of secondary crushers, and conveyed to a final sizing screen. Wash water is added at the screen and the fines are flumed with the water to the large stockpile.

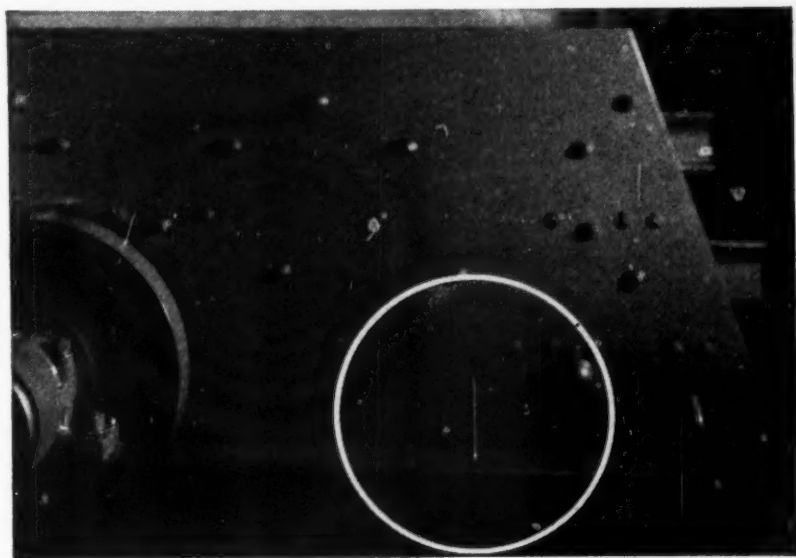
Featured at the Greystone Granite Quarries at Henderson is a large stockpile located above the belt conveyor that delivers stone from the crusher in the quarry to the main plant. A little more than half of this 555-ft. conveyor is encased in a concrete housing containing openings to admit the stone in the stockpile to the belt. Stone delivered from the primary crusher in the quarry is sized on a screen, any product from the screen going to a belt that feeds the stockpile, or to further processing. This novel arrangement permits independent operation of the main plant and the quarry.

Bryan Rock and Sand Co., Rockton, has the primary crusher located at plant level and uses skip cars to elevate the stone from the quarry. Three 6-ton Easton trailers provide quarry haulage that gives a good flow to the plant. To insure continuous operation of the plant during the gaps produced while skip cars are in transit, two surge stations are utilized. Stone delivered by belt conveyor from the primary crusher to screens is scalped into secondary crushers, the product from this operation going to a surge bin located above the conveyor from the primary crusher. The belt can thus be kept charged to capacity at all times. Stone passing the scalping screen is elevated to final screening operations above the bins, where the oversize is conveyed to a second surge pile. Stone from this surge pile is returned to secondary crushing opera-

(Continued on page 146)



No Waste Motion!



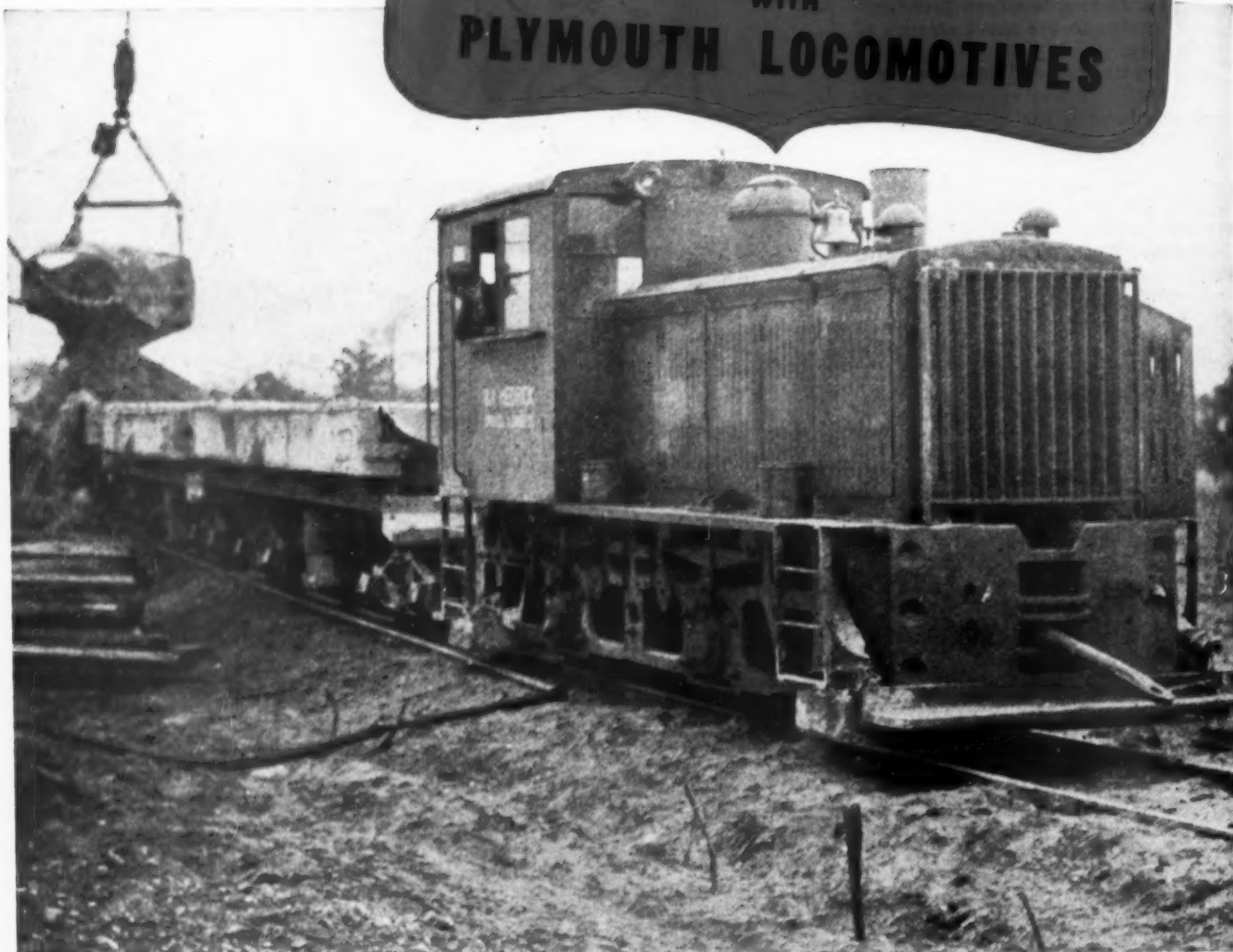
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● Contrast the drawing above with the unretouched photo of a Seco vibrating screen moving at 1050 R. P. M. Here is conclusive proof (note the pencil and washer on the base frame are unshaken) that Seco keeps all of the vibration in the live body... where it belongs. Note also, if you have a magnifying glass, that there are many little circles visible on the side plates. These indicate that the screen's motion is in true circles, with no distortion. No wonder operators everywhere report increased tonnages on all types of screening jobs with these dependable Seco vibrating screens. Write for "A Guide to Better Screening." Dept. B



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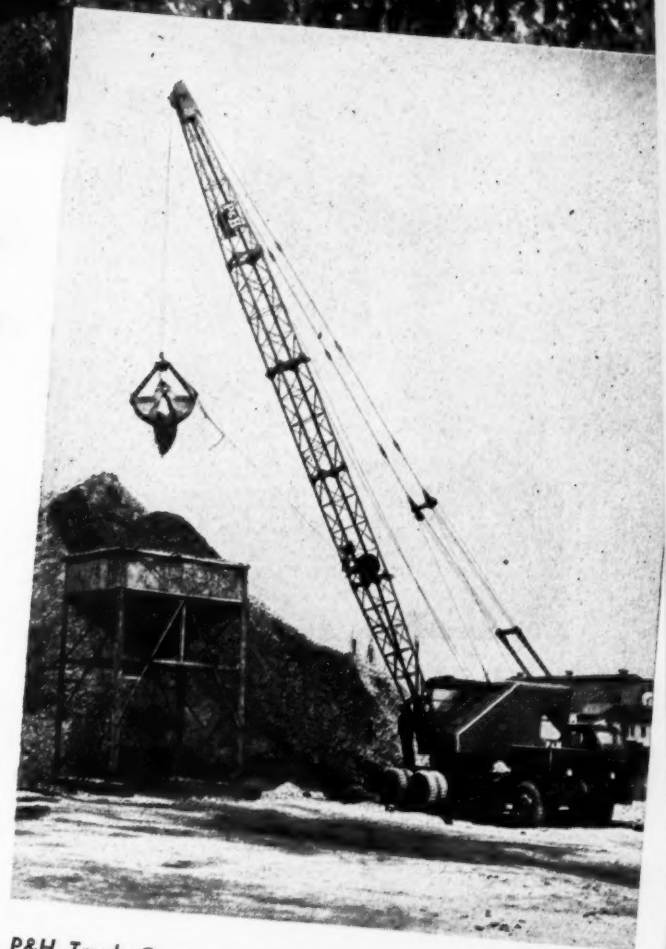
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Operating Trends

(Continued from page 141)

tions by belt conveyor for eventual return to the surge hopper above the primary belt.

Quarry Transportation

Departing from a system of manual loading and cable-hoist transportation of cars from the quarry to the crushing plant, Piedmont Quarries Co., Winston-Salem, installed loading equipment, placed the primary crusher in the quarry and adopted belt conveyor transportation to the main plant in 1941. Resultant increase in production more than paid for the initial cost of the changes as well as alleviating the difficulty of securing man power. This company also works a granite deposit consisting of a tough, durable rock with a low percentage of wear.

The trend towards primary crushing in the quarry has been amplified at the Woodleaf Stone Co., Stokedale, where scalping and secondary crushing is also done in the quarry. Two belt conveyors, one feeding the other through a transfer station, elevate the crushed product from the quarry, 105 ft. below ground level, to the plant. Another innovation at this plant is an auxiliary bin that can be fed by a swinging belt conveyor from the permanent bins below the final screens. These bins permit direct loading to trucks thus obviating the necessity of loading from stockpiles that would necessarily be built up when the plant bins are full.

Stone Sand Recovery

One of the stone plants in North Carolina that reclaims fines is the Southern Aggregates Corporation plant at Woodleaf. Wash water and screenings, minus 3/16-in., launder to a sand drag where the fines are recovered. Although the State Highway Department does not permit the use of this stone sand, the fines are used in other fields, such as aggregate for concrete block, asphalt filler, and related uses.

A 15-acre area has been worked to a depth of 90-ft. at this quarry, and present operations consist of lowering the quarry floor in a 33-ft. lift. Quarry haulage is handled by 10- and 12-cu. yd. Easton trailers that transport the stone to a 12K Allis-Chalmers gyratory crusher. Crushed stone is elevated from the quarry to the plant by a long belt conveyor, where it is scalped and recrushed. Secondary crushing is done in a No. 10 Traylor gyratory crusher and two 4-ft. Symons cone crushers, one a fine bowl and the other a coarse bowl. Stone conveyed to the final screening operations may be diverted to a large surge pile in the quarry, where a belt conveyor in a reclaiming tunnel feeds it back to the conveyor from the quarry. Independent operation of the quarry and plant is thus possible.

In 1940, the Superior Stone Co. began operations at a virgin deposit of limestone near King's Mountain. Early in 1946, the deposit was worked sufficiently to permit installation of a primary crusher in the quarry for the purpose of providing a more uniform load to the plant. The quarry has been worked to a depth of 86-ft., and the resultant haul from the quarry to the plant necessitated more haulage equipment with heavy maintenance due to the load placed on the trucks. Installation of primary and secondary crushing equipment with belt conveyor transportation to the plant remedied this situation. Production increased 130 per cent with the new system.

Crushed limestone is also produced at the Nanatahala Talc and Limestone Co. at Nanatahala, where the floor of the quarry is at the same level as the top of the plant, permitting gravity flow throughout the plant to the finished material bins. The face of the quarry is about 225-ft. high, and is worked in 16-ft. benches. Stone is hauled to the primary crusher at the same elevation as the quarry floor and crushed stone is gravity fed to screens and secondary crushing operations. Final screening operations are handled at present by a rotary screen. The change to vibrating screens will be made this Winter for the purpose of handling a larger load and thus increasing production. Extra crushing capacity will also be incorporated into the plant.

Safety Practices

SOME of the best safety practices of the mineral industry are summarized in a publication recently released by the Bureau of Mines, Washington, D. C. Information Circular 7387, "Some Safety Practices for Metal Mines, Nonmetal Mines (Other than Coal), Mills, Metallurgical Plants, and Quarries," includes State mining regulations, company safety rules, and the experience of Bureau engineers over more than three decades.

Under the heading, "Surface Conditions," the publication offers numerous safety suggestions relating to the operation of mills and metallurgical plants, open pits, quarries, surface excavations, hoists, mine cages and shafts, steam and compressor plants.

The section on "Mining Methods, Conditions and Equipment" lists standards for minimizing hazards associated with hand-loading operations, surface and underground haulage, fuse and electric blasting, transportation and storage of explosives, installation of electrical and mechanical equipment, as well as operation of scrapers, cranes, and other equipment. A chapter on "General Safety Conditions," covers such topics as supervisory personnel and practices, establishment of employee-official safety organizations, and inauguration of first-aid and mine-rescue training programs.

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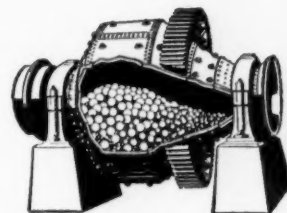
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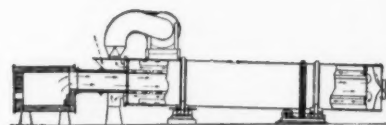
Extremely low maintenance costs are another advantage the Hardinge line offers. Sturdy construction, precision manufacturing processes, and practical engineering by men who know the jobs the equipment has to do . . . these combine to make maintenance expense a minimum.

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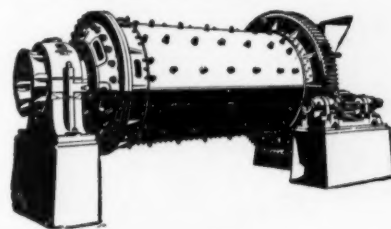
Let trained men from the nearest Hardinge branch office assist you to determine your equipment needs. Nominal surveys are made without charge, and you can depend on the recommendations made. Consult the list of branch office addresses below.



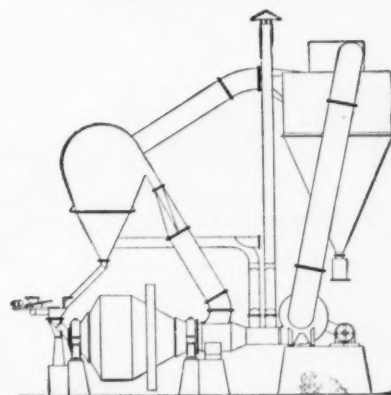
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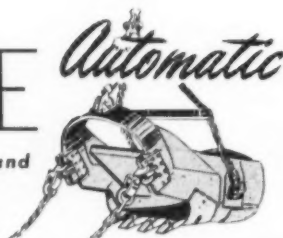
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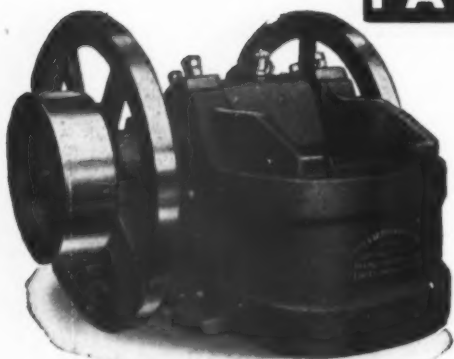
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Grinding

(Continued from page 123)

raw materials requirements during a normal weekly operating schedule. This type of circuit is included in two Latin-American cement plants scheduled for completion by the end of 1946. The grinding circuit is identical to the layout illustrated in Fig. 14 and the overflow from the rake classifier, after thickening and blending to proper composition, constitutes the feed to the kiln. At these plants, it is not contemplated to manufacture high-early-strength cements. The fineness of the raw mixture will be 90-92 per cent minus 200-mesh which, at the moderate tonnages required, does not justify two-stage grinding. Rather, the most economically sound installation calls for a single ball mill and classifier.

A notable clinker grinding installation, having a rated production of 420 bbl. of cement ground to 1800 specific surface, was executed in 1938, and consists of one 10½- x 12-ft. preliminary and three 830 Ballpeb mills arranged for central peripheral discharge as shown in Fig. 11. This circuit is also employed for grinding high-early-strength cement to 2600 specific surface and when grinding to this fineness output declines to approximately 50 per cent of the capacity noted for the coarse grind.

The secondary Ballpeb mill is designed as described with two centrally located division heads or diaphragms through which material is discharged. The mill is fed through the end trunnions. This construction provides a comparatively short path over which the load must pass from the point of entrance to the point of exit from the mill, and this limits the time during which rejects or oversize are acted upon by the grinding media. The effect is that of increasing the number of times an oversize particle is returned to the mill for regrinding and the tendency toward overgrinding is overcome to a considerable extent. Energy expended on particles already reduced to proper fineness is held to a minimum due to the fairly rapid evacuation of the contents of each grinding chamber.

The central peripheral discharge Ballpeb mill as applied to cement clinker grinding is operated with two air separators. The finished material or fines from the first separator is delivered to the second separator which removes cement of proper fineness from the circuit and decreases the load as fed to the No. 2 compartment. This compartment, therefore, is not burdened with fines on which no further useful work can be done and grinding is carried on under relatively efficient conditions.

An increase in the output of the 10½- x 12-ft. preliminary in the order of from 5 to 10 per cent was experienced by providing clinker feed that has been crushed to minus ¾-in.

instead of kiln run clinker to the mill. A secondary crusher is operated in closed-circuit with vibrating screens for this purpose. Surface units obtained in the preliminator correspond roughly to 25 per cent of the total surface developed in finished cement when ground to approximately 1800 specific surface.

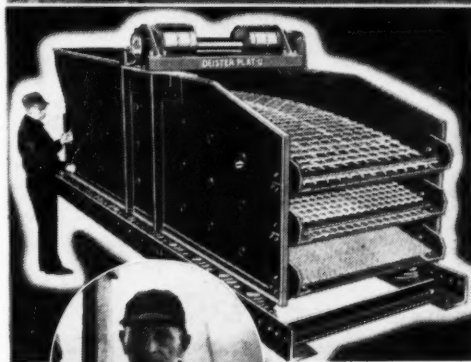
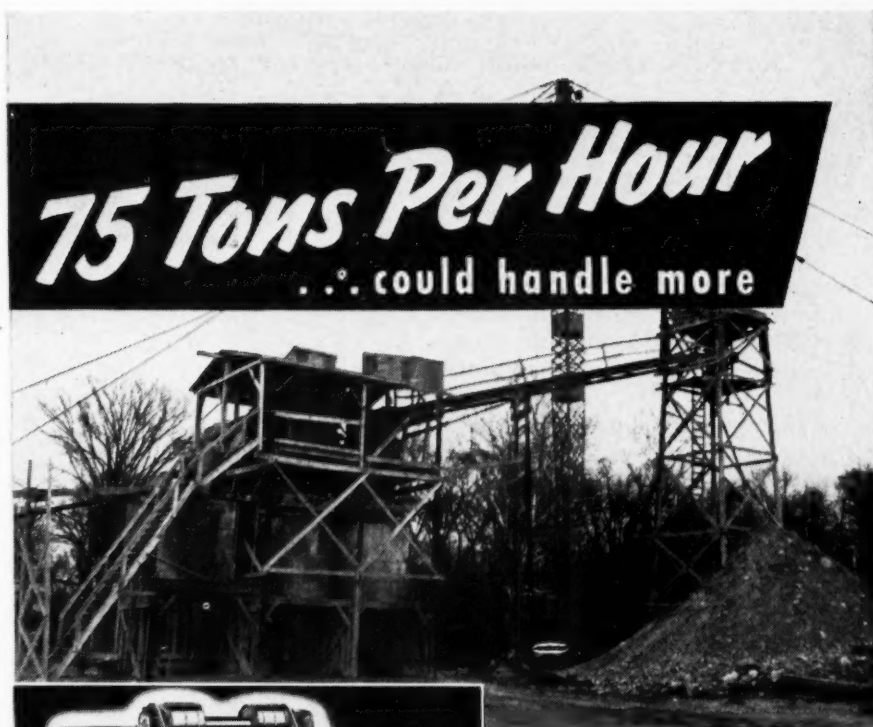
An arrangement that is similar to the one just described in that it consists of a preliminator and a Ballpeb mill is shown in Fig. 13. Each of these circuits consists of a 8½- x 9½-ft. preliminator and an 830 Ballpeb mill which is of conventional design and does not have the central discharge feature. Balance of work done in this circuit is attained by recirculating a portion of the separator oversize to the preliminator. The proportion of rejects split between the feed to each mill is adjustable and depends on the hardness of clinker and the desired fineness of cement. Both Figs. 12 and 13 represent modern clinker grinding circuits of advanced design into which great flexibility has been incorporated.

Another type of dry grinding flow-sheet, which provides a large number of alternate routes that may be adopted to perform a given grinding job, is that described in Fig. 15. This circuit is composed of two or more ball mills, identical, except for the width of openings in the discharge diaphragms. These mills may be interconnected to serve varying grinding requirements in the production of cement or other dry pulverized products.

Standard cement may be produced in a combination of two mills while another mill may be added to provide the grinding capacity necessary to produce high-early cement without suffering an appreciable decrease in output. When arranged in this manner, there would be three stages of grinding available. The last stage may be run in open circuit to provide a certain quantity of "flour" or an over-ground fraction from which the cement would derive considerable of its surface area. This practice is sometimes followed when, due to physical characteristics, cement obtained as air separator fines is too uniform in particle size.

The 9½- x 10-ft. dry grinding preliminator ball mill shown in Fig. 12 was originally acquired to operate in conjunction with an existing Ballpeb mill that had been converted from a Compeb mill when a modernization program was effected in a raw grinding department. The evolution of the circuit began when the vibrating screens that had been installed to provide a closed-circuit preliminator were replaced by an air-separator as shown. The Ballpeb mill was also in closed circuit with this same separator. This two-mill circuit apparently failed to provide uniform particle size, which is a most important condition in preparing raw cement mixtures. It became evident that overgrinding to a certain degree occurred during the

(Continued on page 150)



Mr. Paul Routh (lower left), who owns the gravel plant pictured above with a Deister Plat-O Vibrating Screen similar to the one shown at the left, says: "We have here an excess of 3/16" materials which we must eliminate without overloading the screen with fines. We are doing with this one four-deck screen what normally would be done with two screens. I've never had any trouble starting it, owing to the fact that the unbalanced shaft is lubricated with a light oil. This Deister really does work for me."

A single 3' by 8' four-deck Plat-O Vibrating Screen, installed in April, 1946, at the Routh Gravel Plant, Zionsville, Ind., is handling up to 75 tons of material per hour. The screen "could handle twice as much if the one and one-quarter-yard bucket could deliver that much gravel to the screen," owner Paul Routh says.

"This Deister Plat-O is a better screen than any make I've seen operated," he adds, "and I look them all over before I bought."

The Routh Gravel Plant is only one of many where profits have been increased by using Plat-O Screens. Write Deister Machine Company Engineers for information on how to install this superior screen in your operation for more efficient, trouble-free, and profitable material handling.

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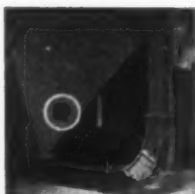
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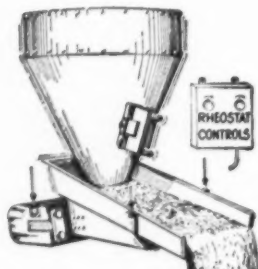
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for
PULVERIZERS
CRUSHERS
ROLLS
SCREENS



for
SHOVELS
DREDGES
CRANES
CONVEYORS

The Frog, Switch & Mfg. Co.
Established 1881
CARLISLE, PA.

Grinding

(Continued from page 149)

comparatively long passage through the Ballpeb mill and, as a logical step in eliminating the undesirable condition of the raw mixture, experiments were undertaken to accomplish the necessary grinding in the preliminary mill in closed circuit as shown. The outcome was entirely successful and, after proper adjustments in the physical construction of the mill, the circuit began operating as a single-stage ball mill installation. The product from the separator is 88 percent minus 200-mesh which is produced at a low energy consumption per barrel equivalent of raw mixture.

As indicated in the sketch, the mill discharges through a peripheral grate which, located close to the periphery of the mill shell, facilitates the flow of dry material through the mill. This permits obtaining maximum advantage from the employment of the classification principle for dry grinding in which one of the problems is to accelerate the flow of material through the grinding chamber.

Reducing Power Consumption

In producing a barrel of standard portland cement, which consists of 365 lb. of pulverized cement clinker and 11 lb. of gypsum, approximately 20 kw. hr. of electrical energy, accounted for in all phases of the process from crushing to packing, is expended in a modern cement plant. Between 60 to 70 per cent of this total represents power consumed in grinding both the raw materials and clinker to the desired fineness. Where the grinding equipment and circuits are modern and employ suitable classification apparatus, the energy required for grinding may be considerably reduced from that consumed by open-circuit operation conducted in machinery that is obsolescent from the standpoint of present day practice.

The production of various types of portland cement of consistently high quality to meet exacting official standard specifications, as well as specifications designed to meet special conditions as determined by contractors' engineers, imposes a great responsibility on the raw materials milling department of cement plants. Absolute uniformity of the raw mixture must be maintained both with respect to chemical composition and particle size and the latter must be accurately controlled within a certain range of particle size, from 15 to 60 microns, in order to permit the physico-chemical reactions in the rotary kiln to proceed to the proper degree of combination under proper conditions. When extremely fine and coarse particles exist in raw mixtures, premature fusion, involving potentially serious interruptions to continuity of kiln operation through the formation of obstructing rings, may occur. Tramp oversize particles preclude proper combination of lime and silica which will be reflected in non-specification cement. Raw materials proc-

essing as practiced in modern cement plants, involving such operations as proportioning, grinding, classification, thickening, agitation and blending, renders practicable and economic the manufacture of today's superior cements.

In clinker grinding, also, the development and improvement of grinding equipment and circuits has imparted great flexibility in the clinker grinding phase of the process by means of which cements of varying fineness may be produced by manipulation of simple controls located on the several elements of the grinding system. This feature of versatility was not available in grinding circuits that were in vogue 20 to 25 years ago when only standard portland cement was manufactured. As outlined in the description of grinding circuits, the demand for improved cement created a need for more efficient and specialized types of grinding mills and accessories which are represented in today's refined clinker grinding systems which may be readily adapted and regulated to meet commercial situations as created by the market demand for cements.

It should be emphasized that all three cement making departments designated as the raw materials processing, kiln, and clinker grinding departments, must possess inherent characteristics of flexibility and regulation to meet the requirements encountered in normal operating schedules that impose severe demands on the adequacy of even the most advanced plant design. In recent years, the raw grinding department has undergone the most radical alterations of any plant section, beginning with the conversion to the wet process, involving the introduction of hydro-metallurgical equipment that was previously not applied in the cement industry. Precise custom-made raw mixtures easily prepared at will with such equipment, are essentially the basic elements on which depends present day cement practice in the United States.

Modular Sizes

AMERICAN STANDARDS ASSOCIATION, New York, N. Y., has approved standard sizes for Clay and Concrete Modular Masonry Units. Sponsors are the American Institute of Architects and the Producers' Council, Inc. Section 4, Concrete Masonry Units, on page 8, explains the various dimensions. The standard or net dimensions are equal to the nominal dimensions less the thickness of the standard joint which is $\frac{3}{8}$ -in. For example, the modular size of nominal 8- x 8- x 16-in. units is 7 $\frac{5}{8}$ - x 7 $\frac{5}{8}$ - x 15 $\frac{5}{8}$ -in.

New Office

THE LONE STAR CEMENT CORPORATION, New York, N. Y., has announced the removal of the Pennsylvania division offices from 342 Madison avenue, New York City, to 1441 Linden street, Bethlehem, Penn.

A different type of Slurry Pump of new advanced design!

The New Morris Type "R"

★ will give you Longer Wear

★ Less Trouble, Lower Operating Costs!

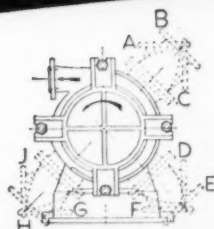
Gland Under Suction Pressure Only

To Dismantle Remove 4 Bolts

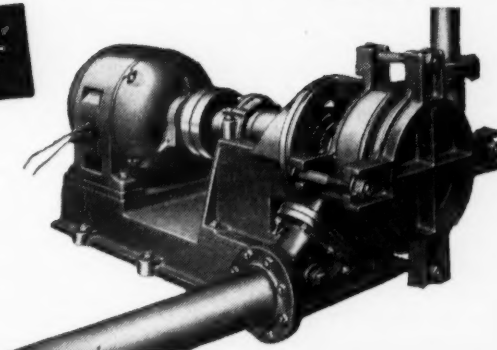
Impeller Removable Without Disturbing Piping



Removing Impeller



Exceptional number of nozzle positions



It took 80 years' experience with material-handling pumps... constant practical testing in the field... and advanced engineering skill to develop the exclusive Morris Type "R" slurry pump. There is no other like it for your cement mill operations.

Specify the New Morris Type "R" Slurry Pump— Here Are 12 Reasons Why!

- 1- Heavy, wear-resistant parts.
- 2- No internal studs or bolts.
- 3- No troublesome internal joints and fits.
- 4- Overcomes uncertainty of proper hub-sealing water pressures.
- 5- Ability to handle maximum suction lifts and almost unlimited positive suction heads.
- 6- Freedom from packing troubles.
- 7- With clamping effect of bolts on discs, shell is not subject to high stress. Consequently shell can be made from variety of materials with high abrasive resistance though not necessarily of high strength.
- 8- Shell interchangeable for right or left hand rotation. Suction and discharge nozzles can be rotated around axis of pump to positions in any of four quadrants, a total of 72 possible combinations.
- 9- Low velocity in suction chamber reduces scouring action, increasing life of chamber which is a replaceable casting not integral with bearing frame.
- 10- Worn clearances on suction side of impeller easily closed by four adjusting screws.
- 11- Excellent hydraulic efficiency.
- 12- Power requirements surprisingly low.

MORRIS MACHINE WORKS

Baldwinsville, N. Y.

Sales Offices in Principal Cities



CENTRIFUGAL PUMPS

New Incorporations

Palmer Crushing Co., Slinger, Wis., has been incorporated to conduct, engage in and carry on a general sand, gravel and crushed stone business, etc., with a capital of 500 shares of common stock, no par value. Incorporators are L. M. Niebler, P. W. Palmer, and Eunice M. Dvorak.

Boston Crushed Stone & Asphalt Corp., W. Roxbury, Mass., has been organized, with a capital of 100 shares of common stock, no par value. John Deveney is president and treasurer, and Helen Finn is clerk.

Decatur Sand & Gravel Co., Lincoln, Ill., has been incorporated by Fred W. Longan, John S. Hubbard, and G. Harold Hubbard. John S. Hubbard will be manager of the plant.

Manufacturers' News

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has named Howard Hansen as supervisor of the office of J. L. Singleton, Manager of district offices. Albert R. Knauss, formerly of the Tulsa district office, has been appointed manager at Memphis, Tenn.

Clipper Mfg. Co., St. Louis, Mo., announces that the St. Louis office will be consolidated, in part, with the newly completed factory and general office building in Kansas City, Mo.

The St. Louis warehouse will remain at 4030 Manchester but all advertising, material purchases and engineering work will be handled at 2800 Warwick, Kansas City, Mo. Neligh Coates is president; Robert G. Evans, assistant general manager; Art Wiedmann, sales manager; Harold J. Wright, engineer; Laurance V. Michaux, export manager, and Robert M. Stubbs, assistant advertising manager.

Link-Belt Co., Chicago, Ill., has announced the opening of a sales office in Milwaukee, Wis., with William M. Hufnagel in charge as district sales manager, assisted by H. B. Johnson and F. E. Sweeney.

American Welding Society, at the recent annual meeting, awarded the 1946 prize of the Resistance Welder Manufacturer's Association to Julius Heuschkel, research engineer, Westinghouse Research Laboratories, East Pittsburgh, Penn., for his paper entitled, "Selecting Spot Welding Schedules for Low Carbon Steels." James F. Lincoln, president of The Lincoln Electric Co., Cleveland, Ohio, was awarded the Samuel Wylie Miller Memorial Medal.

Gar Wood Industries, Inc., Detroit, Mich., has appointed Russell D. Hiller, Jr., as district manager, general line, covering Texas, Oklahoma and Louisiana, with headquarters in Tulsa, Okla. Mr. Hiller was formerly associated with the Air Reduction Sales Co. in Tulsa. J. E. Brown has been appointed manager of the Phil-

adelphia branch and will be in charge of the products of the hoist and body, winch and crane, and tank divisions. Clifford A. Sharpe has been elected vice-president in charge of manufacturing in Detroit, Wayne and Marysville, Mich.; Mattoon, Ill.; Findlay, Ohio; Newport News, Va.; and St. Paul, Minn.

Link-Belt Co., Chicago, Ill., announces that George P. Torrence, executive vice-president, has been elected president of the company, succeeding William C. Carter, who has retired but continues as a consultant, director and chairman of the executive committee. Mr. Torrence, a graduate of Purdue University in mechanical engineering, started with Link-Belt in 1911 as a draftsman. In his 25 years with the company, he served in various capacities, as manager of the Indianapolis operations from 1926 to 1932 and as president from 1932 to 1936. In addition to his experience with Link-Belt, Mr. Torrence was general manager of Rayon Machinery Corp., a subsidiary of Industrial Rayon Corp., from 1936 to 1944; and president of Cleveland Pneumatic Tool Co. from 1944 to 1946.



George P. Torrence

H. K. Porter Co., Inc., Pittsburgh, Penn., has moved its Quimby pump manufacturing operations from Newark and New Brunswick, N. J., to Pittsburgh, Penn.

The Colorado Fuel & Iron Corp., Denver, Colo., has appointed Howard J. Jones as manager of industrial relations, and Horace J. Jones as manager of industrial engineering. Both were formerly connected with the Republic Steel Corp.

Farrel-Birmingham Co., Inc., Ansonia, Conn., and Buffalo, N. Y., has reopened its branch office in Chicago, Ill., with Harry Temporal in charge.

Truck-Trailer Manufacturers Association, Washington, D. C., has announced that the Fruehauf Trailer Co., Detroit, Mich., has loaned Vernon M. Drew, the company's research director, to a committee of the National Research Council which is undertaking a scientific survey to determine what would be the most economic vehicles on the most economic roads.

Bemis Bro. Bag Co., St. Louis, Mo., announces that H. P. Claussen, vice-president and director of the cotton department, Boston, Mass., has been elected a vice-president of the Cotton Textile Institute.

Davey Compressor Co., Kent, Ohio, has appointed Claude B. Smith Co., San Francisco, Calif., as Northern California distributor for Davey compressors.

Joseph T. Ryerson & Son, Inc., Chicago, Ill., has completed the new office building adjacent to the Ryerson-



Above is a small Sauerman "Crescent" Power Scraper stripping heavy overburden from a rock deposit. Note how the guide blocks are elevated to permit disposal of all the spoil in a single wide, high pile.

SAUERMAN LONG RANGE MACHINES

Ask any operator of a Sauerman Power Scraper or Cableway and he will tell you that this is the fastest and cheapest equipment for moving materials from pit, pond, bank or stockpile.

These machines handle every kind of earth or bulk material, wet or dry. Operating radius can be extended as far as 1,000 ft. or more. Power consumption,

either electric, gasoline or Diesel, is moderate. First cost is low and maintenance simple. Operator has control of everything at his finger-tips.

Sauerman engineers will gladly study your material handling problems. Their advice may save you money and will be given free, accompanied by catalogs and layout sketches. Write now.

SAUERMAN BROS., INC.

530 S. Clinton Street,

Chicago 7, Illinois

Pittsburgh steel-service plant in Carnegie, Penn.

Hyster Co., Peoria, Ill., has appointed Dan J. Sheehan as manager of the Danville, Ill., plant. He was formerly superintendent of motive and power for the Chicago & Eastern Illinois Railroad.

Dings Magnetic Separator Co., Milwaukee, Wis., has moved into a new plant in the southwestern industrial district of Milwaukee. New equipment and machine tools have been installed throughout and latest color engineering practices used in painting shops and machine tools in color to reduce eyestrain and provide pleasant working surroundings.

American Standards Association, New York, N. Y., announces that Frederick R. Lack, vice-president and a director of Western Electric Co., has been elected president of the Association for the year 1947, succeeding Henry B. Bryans, executive vice-president of Philadelphia Electric Co., who was formerly vice-president of the A.S.A. George H. Taber, Jr., executive vice-president of the Sinclair Refining Co., will be vice-president.

H. K. Porter Co., Inc., Pittsburgh, Penn., has appointed Gilbert E. Collyer as district manager of the Detroit office. He was formerly located in the general sales office at Pittsburgh.

Evercrete Corp., New York, N. Y., manufacturers of specialty paint and waterproofing products, announces the opening of a new technical service department which will offer free technical assistance and advice to organizations and individuals in the building and construction supply fields on problems concerning protective and decorative coatings for waterproofing, decorating and refinishing cement and cinder block units.

Gar Wood Industries, Inc., Detroit, Mich., has announced the appointment of Robert F. Whitworth as division sales coordinator, and George W. Murphy as branch sales coordinator.

Nordberg Mfg. Co., Milwaukee, Wis., announces the appointment of B. T. Eagerton as export manager, and Arthur G. Hall as works manager. Mr. Eagerton, formerly assistant manager of the export division of the Oliver Corp., will make his headquarters at Milwaukee, Wis. Mr. Hall was formerly with the Bartlett Hayward Division of Koppers Co., Baltimore, Md.

Bemis Bro. Bag Co., St. Louis, Mo., announces that John O. Frahm, sales representative at Oklahoma City, has been transferred to the Kansas City Division, with headquarters at Wichita, Kans.

Hardinge Co., Inc., York, Penn., has announced the removal of the San Francisco branch to Room 24, 94 Natoma St., San Francisco, Calif.

St. Regis Paper Co., New York, N. Y., announces that an increase of more than 500,000,000 units in the annual production of multiwall paper bags will be made possible through a planned program of expansion at its Florida properties.

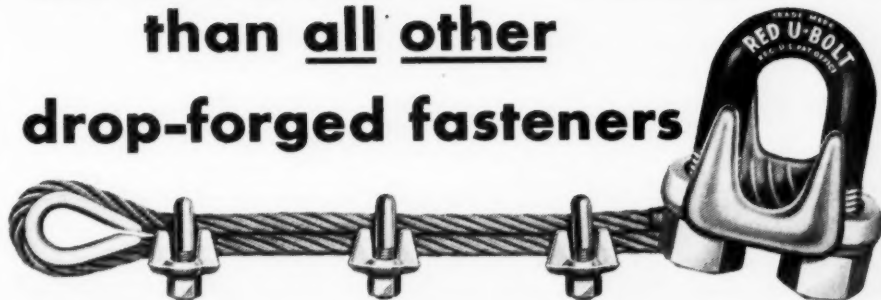


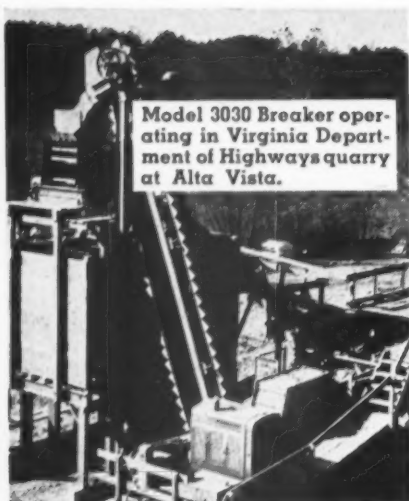
*Bertha didn't understand parade work . . .
so they fixed her with Crosby Clips!*

For the long pull, for the heavy drag, for stubborn and hard-to-handle wire rope jobs, there's only one best fastener, of course . . . dependable CROSBY CLIPS. From the little 1/8-inchers on up to the "jumbo" sizes, made for 3 and 4 inch wire rope (so big you can hardly lift a

pair), the CROSBY CLIP line is perfectly complete. They're drop-forged, not cast. Hot dip galvanized. Safe, simple, sturdy. Available through distributors everywhere; made exclusively by American Hoist and Derrick Co., St. Paul 1, Minnesota.

Industry buys more
CROSBY CLIPS
than all other
drop-forged fasteners





Model 3030 Breaker operating in Virginia Department of Highways quarry at Alta Vista.

FIGURES DON'T LIE...

| Crusher Speed R.P.M. | 250 | 690 | 1000 |
|--|------|------|------|
| Tons Per Hour | 185 | 175 | 135 |
| Percentage Retained on 2" Screen | 34.0 | 5.0 | .6 |
| Percentage Passing 2" Screen and Retained on 1" Screen | 26.0 | 24.0 | 11.0 |
| Percentage Passing 1" Screen and Retained on 3/8" Screen | 21.0 | 34.0 | 34.0 |
| Percentage Passing 3/8" Screen | 18.0 | 37.0 | 54.4 |
| H.P. Required | 70 | 100 | 150 |

Compare these performance figures with your own production reports. And remember you get only cubical aggregate from the Dual Impact Action of the New Holland 3030 Breaker . . . produces any size from ag lime to road ballast.

Write Dept. V-1 for complete performance data and full Breaker details.

New Holland Manufacturing Company
Mountville, Pennsylvania



Detroit Diesel Engine Div. of General Motors Corp., Detroit, Mich., has appointed John C. Campbell as manager of industrial engine sales, and James W. Brown as advertising manager.

Link-Belt Speeder Corp., Chicago, Ill., and Cedar Rapids, Iowa, has announced the election of David W. Lehti as president of the corporation, to succeed Troy M. Deal, who will retire March 1, 1947. Mr. Lehti became associated with the company in 1925 as a distributor, joined the Speeder Machinery Corp. as a district representative in 1934, and a few months later was made chief engineer of the Cedar Rapids plant. Upon consolidation of the Speeder Machinery Corp. and the shovel and crane division of Link-Belt Co. in 1939, he was promoted to assistant general manager of the Link-Belt Speeder Corp. and was elected vice-president in 1942.



David W. Lehti

Mr. Deal became associated with the Speeder Machinery Corp. in 1922 when with G. T. Ronk, the founder and Walter Baker, he helped to develop the company. He was sales manager from the beginning and in 1933 became president and general manager. In 1939, he was made president of Link-Belt Speeder Corp.

Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, N. J., has received for the fourth consecutive year the National Victory Garden award from the National Victory Garden Institute for encouraging backyard gardening and food preservation among its employees.

The Dorr Co., New York, N. Y., has announced the appointment of Elmer R. Ramsey, formerly vice-president in charge of engineering, as operating vice-president; and of J. Delano Hitch, Jr., formerly manager of the foreign sales division, as vice-president in charge of sales.

St. Regis Paper Co., New York, N. Y., has announced the election of the following new officers of the St. Regis Sales Corp.: Mason F. Ford, executive vice-president and South American manager; Thomas H. Cosford, executive vice-president and Canadian manager; Reginald L. Vayo, executive vice-president and director of sales of Kraft Pulp; William H. Anders, executive vice-president and manager of the Nashua River Division; Edgar Hoppe, vice-president and European manager; Burton A. Ford, vice-president, Multiwall Bag Division; and C. A. Brothman, comptroller.

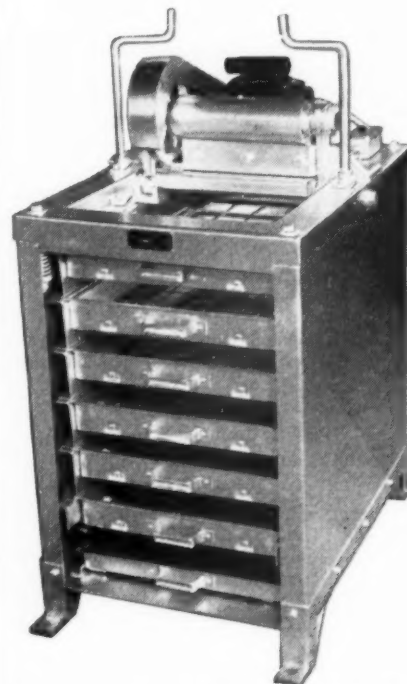
R. G. LeTourneau, Inc., Peoria, Ill., has moved its Eastern sales office to Washington, D. C., under the management of O. A. Williams, assisted by Henry Cain. W. B. Worden, dis-

GILSON

Mechanical Testing Screen

Gives You Fast
Accurate Sizing
of Test Samples:

- Crushed Stone
- Gravel • Slag
- Similar Materials



The GILSON Testing Screen handles a large and representative sample in three to five minutes. Compact smooth operating unit is designed for testing and research over a wide size range from 4-inch to 200-mesh. An attachment for testing sand is optional. You need this practical method of plant control.

8 Gilson Features

1. Makes tests quickly and accurately.
2. Two to seven separations simultaneously.
3. One machine for the entire size range.
4. Screen trays independently removable.
5. Trays adjusted to same tare weight.
6. Visible separation to refusal.
7. Few moving parts to wear out.
8. Engineered for long and practical service.

Write for bulletin and complete details.

GILSON SCREEN CO.
BOX 186 MERCER, PA.

strict sales and service representative in Southern California and Arizona for the past four years, has been named Central sales manager, succeeding M. E. Miller, who has resigned to become sales manager for the Rozier-Ryan Co., LeTourneau distributor in St. Louis, Mo. Harold F. Stenstrom has been appointed district sales representative for Missouri, Tennessee, Arkansas, Louisiana and Mississippi, with headquarters at Memphis, Tenn.

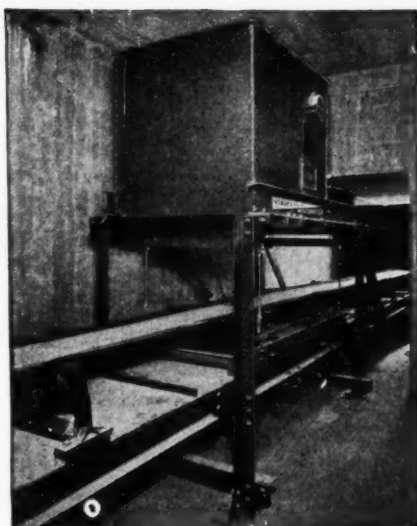
Four Wheel Drive Auto Co., Clintonville, Wis., has appointed A. R. Krug as zone sales manager for the states of Tennessee, Alabama, Florida, Georgia, South Carolina and North Carolina. Mr. Krug was formerly assistant sales promotion manager. Wm. C. Merrill, formerly district sales supervisor, has been named zone sales manager for the states of Texas, Oklahoma, Arkansas, Louisiana and Mississippi. Sales headquarters for the States of California, Nevada, Arizona, Utah, New Mexico, Colorado, Wyoming, Montana, Idaho, Oregon and Washington have been established in the Newhouse Building, Salt Lake City, Utah.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has started production at the Springfield, Ill., plant after a long strike.

Bemis Bro. Bag Co., St. Louis, Mo., sales representatives from every section of the country gathered at the company's general offices recently to attend a week's training conference.

Goodyear Tire & Rubber Co., Akron, Ohio, has appointed Philip X. Mavin as field engineer for the New York district, with headquarters in New York, N. Y. Charles O. Roome has been appointed manager of the St. Louis district. He was formerly on the sales staff of the New Orleans office. John E. Ragan, manager of the St. Louis district since 1935, has been transferred to Atlanta, Ga., as district manager of mechanical goods sales. Philip C. Antoine becomes field representative at New Orleans, transferring from a similar position at Memphis, Tenn. Richard P. Goodenough succeeds Mr. Antoine as field representative at Memphis. Charles H. Murtaugh has been named field representative at South Bend, Ind., replacing Gerald W. Zolman, who returns to Chicago as field representative. Carl Baker has been named field representative at Charlotte, N. C. Robert J. Ario will become field representative at Cleveland, Ohio, moving from Orlando, Fla. William R. Burtle will succeed Mr. Ario as Florida field representative, transferring from the sales staff in Philadelphia, Penn. His successor as field representative will be Robert C. Alexander.

Robins Conveyors, Inc., Passaic, N. J., announces that the Chicago offices of the Robins Conveyor Division and the Hewitt Rubber Division have been combined and moved to enlarged quarters on the 8th floor at 7 South Dearborn Street.



INSTALLATION OF WEIGHTOMETER

FEEDOWEIGHT automatically feeds and weighs material at constant feed rate to suit plant requirements. Use it ahead of ball mill and to proportion and blend 2 or more materials.

The uses of Merrick Automatic Continuous Weighing and Feeding Machines are varied. It will pay you to find out how they can apply to your particular job.

WEIGH and FEED

Plants handling Cement, Lime, Gypsum, Sand, Gravel, Crushed Stone, etc., use the WEIGHTOMETER and FEEDOWEIGHT for fast, accurate production.

WEIGHTOMETER gives a continuous, automatic, and accurate weight record of materials in transit at an extremely low operating cost. All producers of bulk materials handled by belt conveyors need this dependable check on production figures supplied by MERRICK WEIGHTOMETER.

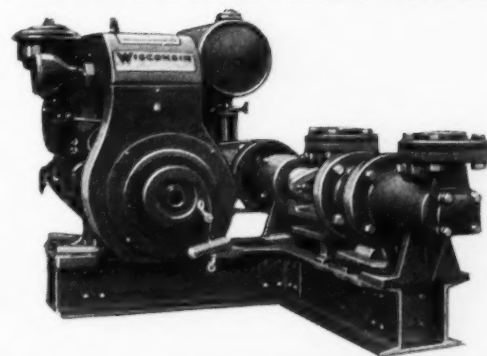
Send us an outline of your requirements



FEEDOWEIGHT

MERRICK SCALE MFG. CO. 188 AUTUMN STREET PASSAIC, NEW JERSEY

WISCONSIN Air-Cooled Engine Powers "Donkey Pack" Portable Pumping Unit



Typical of the many diversified applications of Wisconsin Air-Cooled Engines in engineering service is the unit here illustrated . . . designed for use in the Andes Mountains of South America, for pumping drilling mud on a geophysical shot hole drilling rig. It is so designed and constructed that it can be readily disassembled in three sections and transported by donkeys. A structural aluminum frame was used . . . and a Model AEH 4-cycle, single cylinder Wisconsin Air-Cooled Engine was selected for operating the Model B4-4 Moyno Pump . . . based on such vital considerations as light weight, extreme compactness, heavy-duty dependability and complete adaptability to trouble-free operation in any locality, at any altitude.

It pays to specify "Wisconsin Engine" for your equipment.

Most H.P. per pound **WISCONSIN MOTOR**
Corporation
MILWAUKEE 14, WISCONSIN, U. S. A.
World's Largest Builders of Heavy-Duty Air-Cooled Engines

FIRST CHOICE FOR PROFITABLE LIME SPREADING

The New Leader Lime and Marl Spreader



Illustration shows 11 ft. New Leader Spreader mounted on a long wheelbase Ford truck. New Leader Spreaders are made in 9, 11, 13, and 15 foot lengths and mount on any truck chassis. Other lengths are made on Special Order.

EXTRA PROFITS WITH ROCK BOTTOM ATTACHMENT

—An optional feature for added profits. When you are not spreading lime, and have your spreader equipped with the Rock Bottom Attachment, you can use your New Leader Spreader for hauling sand, gravel, chips, and small rock for farm driveways, construction jobs, etc.

HIGHWAY EQUIPMENT COMPANY, INC.

604 D AVENUE N. W. • CEDAR RAPIDS, IOWA

Features **UNIFORM SPREADING** in **ANY Weather**

Now you can spread more lime quickly and easily. Material won't freeze to sides of the New Leader because hopper is made of wood. Steep sloping sides, EXTRA wide bottom (measures 24 inches), and a positive feed conveyor chain assure free flow, even when material is wet. Twin distributor discs cast a uniform spread. With a Wide Bottom New Leader, spreading profits take an upswing.

BUILT FOR TOUGH SERVICE with electrically welded heavy steel frame and wooden hopper. All drives, gears, and distributing mechanism are designed for long, trouble-free operation.

WRITE FOR LITERATURE

MANUFACTURERS OF THE WORLD'S MOST COMPLETE LINE OF SPREADERS



ABRASION-RESISTANT SCREENS...

For extra long service, and to maintain uniformity of mesh under the hardest usage, Hendrick furnishes heat-treated perforated meal plate for vibrating and shaking screens. Shapes and sizes of openings are adapted to meet specific requirements. Write for detailed information.

Other Hendrick products include Elevator Buckets of all types; Mitco Open Steel Flooring; Mitco Shur-Site Treads and Armorgrids; light and heavy steel plate construction.



Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring,
"Shur-Site" Treads and
Armorgrids

HENDRICK

Manufacturing Company

47 DUNDAFF STREET, CARBONDALE, PENNA.

Sales Offices In Principal Cities

HIGH-TEMPERATURE HIGH-HUMIDITY Speeds Up the Curing Cycle

**Barnes & Cone, Inc., Syracuse, N. Y.,
has one of the most advanced systems
of curing and methods of handling
block and materials in the industry**

By BROR NORDBERG

GREAT PRESSURE that has been brought to bear on the concrete masonry industry these past few years for the utmost in plant production has made the curing cycle the object of critical examination and research. The final result will be one of the greatest advances in manufacturing procedure ever achieved by the industry, from the perspective of quality of product as well as operating economy and plant efficiency.

The curing of concrete masonry units proved to be consuming far too many precious hours and days, to the detriment of plant output and delivered capacity, necessitating radical speed up of the curing cycle but, above all, without sacrifice in quality of product in making early delivery. Much progress has been made, through industry-sponsored research and by individual company contributions, toward perfecting a curing cycle that

will enable delivery within 24 hr. after manufacture, of units that will meet both A.S.T.M. and federal specifications. Chief stress has been on a combination curing and drying cycle to meet, within 24 hr., the 1000 p.s.i. compressive strength required for Grade A units and to remove moisture contained in units in excess of 40 per cent of their total absorption, as required in the principal standards. Where this goal has been achieved there has been marked improvement in quality by every standard, as compared with that of units cured by methods now being discarded.

Much research remains to be done but for the larger capacity plants at least, high temperature accelerated curing is on the way to displacing the formerly accepted practice of overnight curing with low pressure steam plus the theoretical 28 days of yard curing. A number of plants will have

been converted to the adoption of high temperature, accelerated curing and drying cycles during 1947.

Barnes & Cone, Inc., Syracuse, N. Y., has probably had more experience than any other company with accelerated curing and drying, and has had signal success with a process adopted after experiments dating since 1943. The process embodies the simultaneous application of high temperature and high humidity within conventional moist curing kilns and, in its approach to emulating ideal curing conditions, is unique. Glenn C. Barnes, president of the company, who is largely responsible for the development, is continuing his research and very soon will have adopted still higher drying temperatures than the 200 deg. F. standard in the process as herein discussed.

High capacity was a consideration in converting the curing system at Syracuse but the main objective was to improve uniformly the quality of lightweight concrete units. Mr. Barnes was not satisfied with units cured under uncontrolled conditions. Variations in color, strength, wetness, etc., and the necessity to cure for longer or shorter periods according to weather changes were undesirable conditions that he sought to eliminate by development of a controlled system. Accordingly, heating engineers qualified to study the problem were engaged to perfect a system involving high temperature and high humidity that would establish a definite curing pattern.

The approach was to learn all there was to know of the basic conditions required by portland cement for its complete hydration and then to simulate those conditions, insofar as practicable, in plant operation. Prelimin-

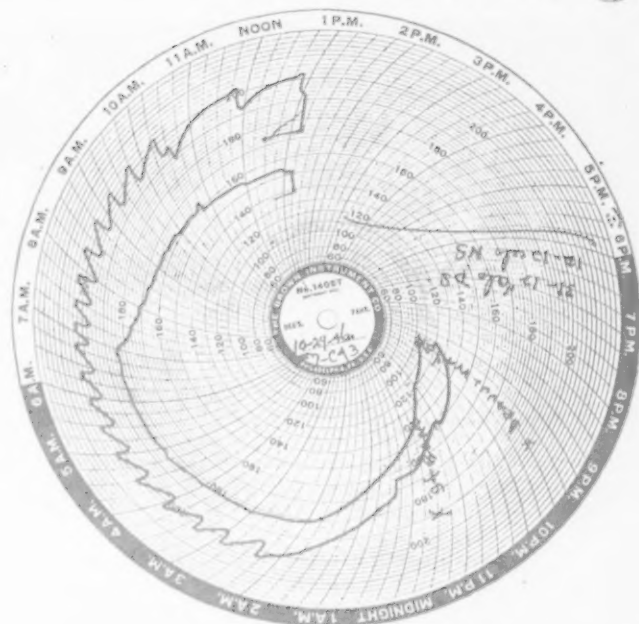
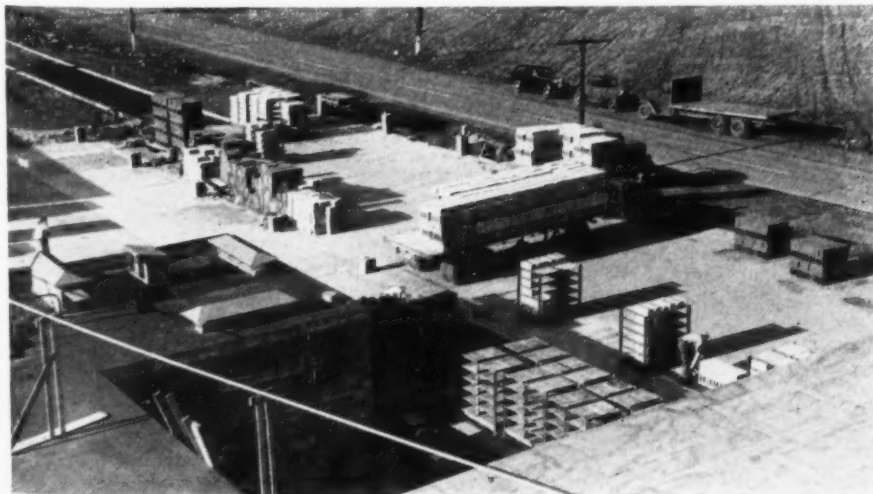
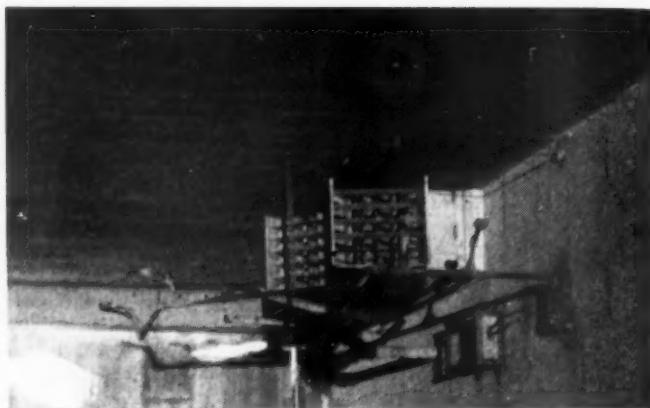
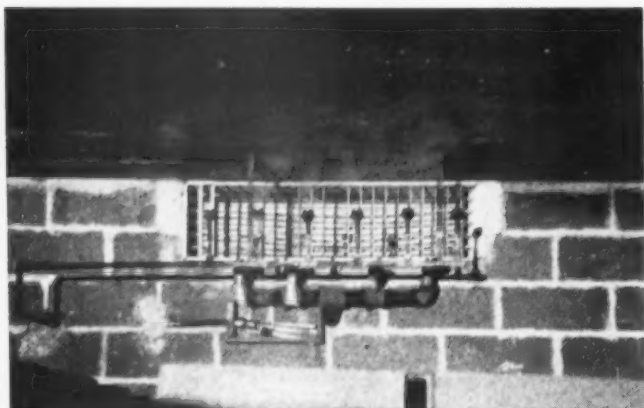


Chart which automatically records temperature and relative humidity in curing kiln



Partial view of yard layout, showing cubing area and a corner of kilns visible to the left



Left: Interior of one of the closed-end kilns showing location and arrangement for release of heated air (duct), atomized moisture and steam into kiln. Note six double nozzles for water atomization, above and forward of steam outlets. Right: Similar installation but in open-ended kiln with apparatus on side wall with different deflecting vane arrangement

ary to the actual work, much time was spent in the research laboratories of leading portland cement companies and in discussion with cement plant chemists. Submerged conditions at 70 deg. F. being found to be ideal for laboratory purposes, it was decided to install a curing system based on the introduction into curing kilns of live steam plus added heat plus sufficient water to literally "make it rain inside the kilns." Fundamentally that is the principle employed—the circulation of heat and moisture in sufficient volume actually to cover all concrete units with a film of water. More details on the theory and application follow a very brief description of the plant layout and kilns, necessary to the discussion.

The plant is operating on a schedule of 15,000 8- x 8- x 16-in. units, largely of cinder aggregate, produced on one 10-hr. and one 9-hr. shift. Some Celocrete units are also produced at this plant. Block are manufactured by two Besser Vibrapac machines, and lift trucks are the exclusive means of transportation of concrete units. Automatic and Yale

trucks handle the machine output into the kilns, a Towmotor carries curing racks to the cubing area and an Erickson fork lift truck loads the cubes on to trucks. The main plant is an L-shaped building and the floor and yard area are concrete paved.

At present, eight curing kilns in two sets of four are in operation, but two more are in the process of building. When completed, there will be six kilns, with doors at both ends, served by a cubing area and four kilns closed at one end that will supply a second cubing area. All will be under cover. The closed-end kilns were the original ones, forming one leg of the main plant structure.

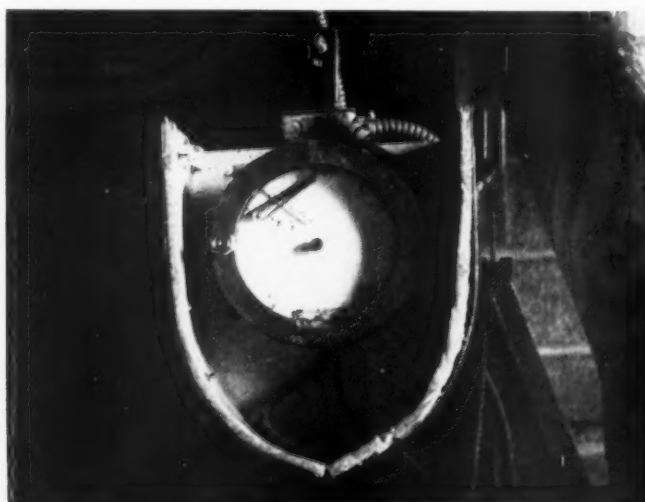
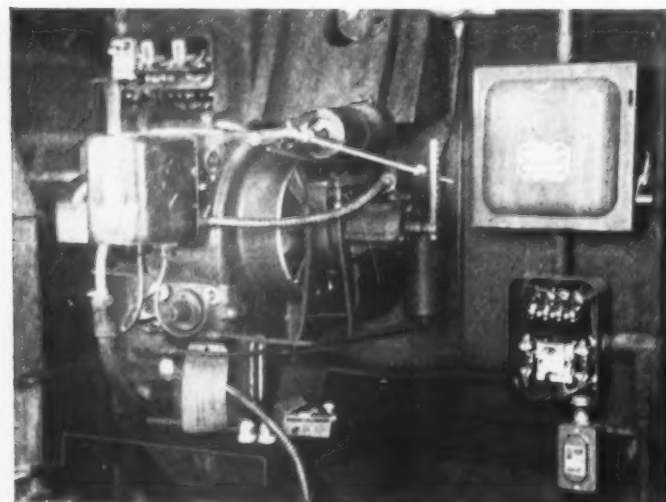
There are two sizes of kilns, five of 5000 cu. ft. capacity and the balance measuring 9000 cu. ft. each. All are 8½ or 9 ft. high. The larger ones, measuring 16- x 60-ft. in plan accommodate 2800 units piled 72 to a rack, and the smaller kilns, 12- x 45-ft. hold 1800 units.

The kilns are not of unusual design. Each group of four (one will have six) kilns has 12-in. outside walls and 8-in. partition walls of cinder block

construction. They are sealed on the inside with Thoroseal. The ceilings are 12-in. thick, constructed of simple T-beams with 8-in. cinder block filler units and topped with 4 in. of lightweight concrete covered over with insulating roofing material. Doors are conventional wooden ones that may be raised vertically by counterweights. It is preferred not to insulate the kilns too much, some loss of heat being considered beneficial because moisture can be increased along with some heat loss.

Curing

It was considered essential actually to move water through the kilns and in order to attain the necessary high humidity to do so, heated air had to be introduced to take up water that is added. It was found necessary to atomize water as it is introduced in order to acquire high humidity quickly—to impregnate the heated air with water before the circulating air comes in contact with the units in the kiln, in order not to take moisture away from the units. And it was further observed that a fairly rapid tempera-



Left: Close-up of one of the hot air furnaces, each kiln being equipped with one unit. Air drawn into furnace from curing kiln at bottom and injected near the ceiling. Right: Each kiln is equipped with instrument which provides a continuous record of curing temperatures and relative humidity

ture acceleration was required to speed up obtaining the maximum humidity. The actual block temperature lagged the air temperature by about 2½ hrs.

Basically, the system involves simultaneous injection of live steam through an atomized spray of water and the forcing of heated air through the kiln so that highly humidified air circulates throughout each kiln.

Equipment

Principal equipment includes a single 100-hp., 95 p.s.i. oil-fired Cyclotherm (c-100) steam boiler, for the ten kilns and a Dravo direct firing hot air furnace for each kiln. The boiler is a high-pressure steam generator that employs a circular motion of gases in a tight spiral over the combustion chamber to gain quick heat transfer and a claimed 80 per cent efficiency. It is rated at 3450 lb. of steam per hr. at 95 p.s.i. and is fully automatic. It compares with a 10-hp. (15 p.s.i.) boiler required for curing 1000 units per day by the old system of curing. The Dravo furnaces are 15- and 25-hp. and also are automatic.

The present system of curing and the location of outlets for live steam, moisture and heated air are the result of experimental operation and suspended weight tests that have been made of concrete units inside the kilns to determine temperatures, humidity, weight loss (water from units), etc. Careful check has been made of the air stream in relation to the units as placed in the kilns.

There are two central heating rooms each adjacent to the four kilns it serves. Three inch header lines are run from the boiler into the heating rooms where the control instruments, so essential to successful operation, are located. The 3-in. lines are cut to 2-in. with 1-in. lines run inside the kilns from the 2-in. lines. There are four steam outlets inside each kiln, near the upper corner on one side. In the closed-ended kilns the only difference is that the location is close to the end of the kiln near the upper corner.

At the point of entry into the kiln, a Powers temperature control valve releases steam at 357 deg. F. inside the kiln at a level just above the top block on the curing racks. The exact location for release of steam is 6-in. below the water atomizers (see illustration) and back one foot, the steam pipes pointing toward and through an atomizing fog—steam literally moving the mistiness through the kiln. Temperature of the steam, of course, drops markedly when it hits the cold stream of atomized water, there being great affinity for water takeup with the considerable temperature differential.

The atomizing units (also see illustration) are six double nozzled (12) sprays each 4-ft. from the side of the kiln and directed into the air flow just



Handling a "cube" of block for truck-loading

above and in front of the steam nozzles. A fog is created by these fine atomizing nozzles, operating under 45 p.s.i. water pressure from a line equipped with a pressure regulator.

In each case a Dravo heat unit is hooked direct to the side of a kiln with an intake from the kiln at the bottom, heated air being forced into the kiln near the top through vents equipped with adjustable vanes to direct the flow. Heated air is circulated at the rate of once per minute per kiln.

The controls and automatic devices employed for regulation are of special interest. Burner and boiler operation are automatic. Steam flow is controlled by a thermocouple temperature controller in the kiln which is interconnected with the Powers steam regulator. The atomizers are also turned on by temperature controller. The wet and dry bulb method of determining relative humidity is employed, the difference between wet and dry bulb thermometer readings being a measure of relative humidity. Temperatures are recorded continuously

by a Brown Instrument recorder, the temperature controller operating automatically to maintain the set levels of temperature. Approximately 90 per cent relative humidity is held, once the kiln temperature is brought to its maximum.

The entire curing and drying cycle consumes about 17 hr. First there is a two-hour waiting period to permit the concrete units to set prior to exposure to live steam. Then follows a gradual buildup in temperature, requiring about four hours, to the 200 deg. F. top temperature. Care is exercised to permit initial set in order to be certain that expansion of aggregate will not result in later breaking of bond. The high temperature is maintained for 5 to 6 hr. followed by a six hour drying period while blowing off the kiln slowly to utilize the maximum of moisture in further curing. The practice is to maintain moist conditions as long as possible.

Mechanically, the sequence of operations is under close regulation. After the short waiting period, the Dravo furnace is started. Water atomization starts automatically at 110 deg. F. of air flow. When the temperature is carried up to approximately 140 deg. F. (2 hr.) the steam is turned on at the Powers valve for seven hours. The temperature is raised to and held at 200 deg. F. automatically by the thermocouple that actuates the steam valve, cutting in and out at a plus or minus 5 deg. F. range. When the temperature exceeds 200 deg. F. the steam cuts out. If relative humidity exceeds the set figure, the Brown instrument cuts off the water and when the figure is too low the water atomizers are started automatically.

After a 7-hr. steaming period, the steam and water atomizers are shut off. The Dravo furnace is kept operating and the kiln is vented slightly for a moderate change of air. The moisture supply having been cut off, the

(Continued on page 192)



Bulk cement is delivered in air-activated containers. Kilns are to the right

MASS PRODUCTION Without Sacrificing Quality of Product

NEWCOMERS in the concrete masonry industry, however conservatively they may have started can gain much inspiration from business policies that have made small companies large, if it is their sincere purpose to do credit to the industry. That very purpose more than any other is responsible for the remarkable growth of the Plasticrete Corp., formerly Hamden Building Tile Co., Inc., Hamden, Conn., which now enjoys the distinction of being one of the very largest manufacturers of concrete masonry units in the United States.

It all started with a hand machine. The business grew from a volume of 15,000 units in 1922 to 57,000 units in 1935, to 3,000,000 in 1943, and now stands at nearly 9,000,000 units, 8- x 8- x 16-in. or equivalent, for 1946. Since June, 1946, the plant has been producing at the rate of 10,000,000 block annually. And the end is not in sight with plans now going forward for an additional 50 per cent increase in annual volume. Plans are now being laid for an eventual production of 20,000,000 units annually.

In our article two years ago (See *ROCK PRODUCTS*, December, 1944, pp. 115-119), we detailed the growth of the company and discussed the aggressive policy, in manufacture and

By BROR NORDBERG

**Plasticrete Corporation,
Hamden, Conn., has set its
goal at 20,000,000 concrete
units annually. Improved
curing facilities and labora-
tory part of program**

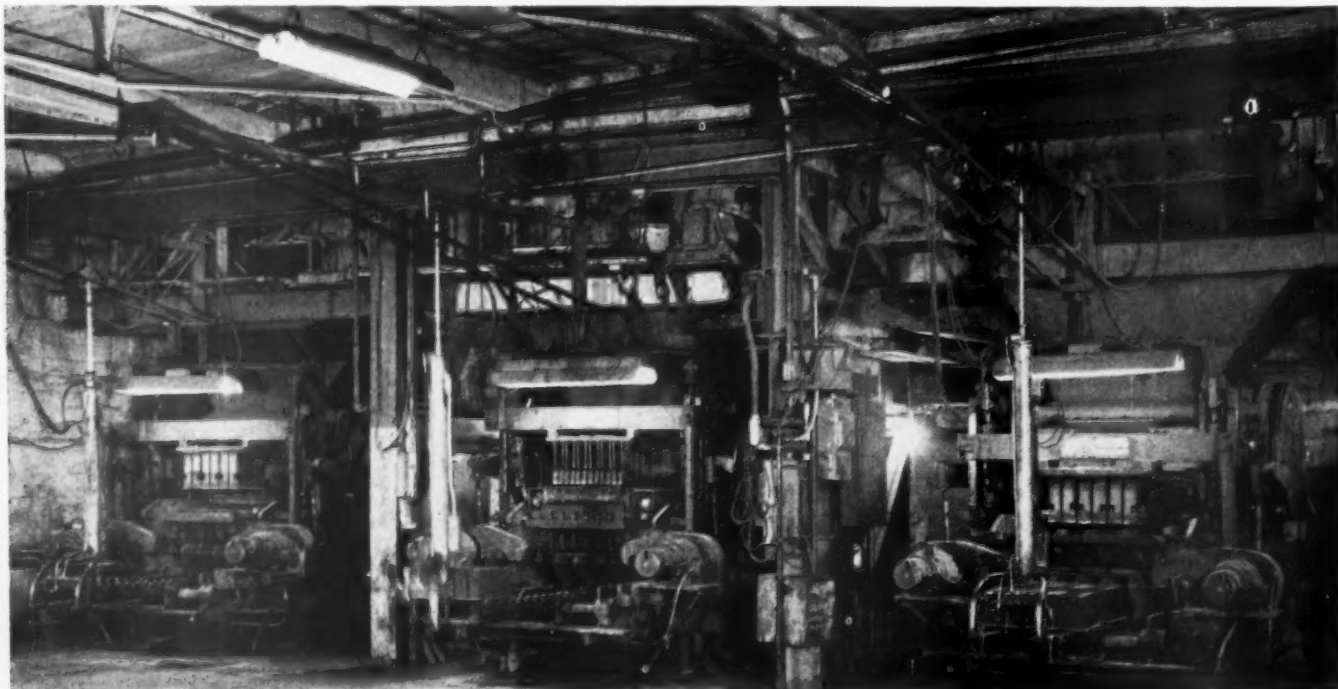
merchandizing, that built a volume of business totalling 3,000,000 lightweight units in 1943. We considered the plant, advertising, quality control and organization in that article, outlining postwar plans for a volume of 5,000,000 units annually, which we now find far exceeded.

At that time the plant was manufacturing 10,000 cinder units per day, exclusive of sills, lintels, sectional burial vaults and some heavy aggregate units, and had been modernized for greater overall operating efficiency with the installation of bulk cement bins and accurate proportion-

ing by Toledo scales. An electrically-controlled weigh hopper had been put in service to charge individual mixers serving three vibrating block machines. A start was made toward adoption of high temperature accelerated curing and attention was being concentrated on the material handling phases of plant operation.

There were also plans to perfect a dealer sales organization and to broaden the overall merchandising program, which then was confined only to the State of Connecticut. This program includes highway billboard advertising, direct mail, point of sale, and institutional advertising. Architects and engineers are supplied with technical information to assist in preparation of plans and specifications.

Much has transpired in a two-year period, that has seen the company outgrow its plant facilities and expand to proportions that necessitated the incorporation of ways of doing business along organizational lines that are unique to the industry. Great advances have been made toward increasingly greater control over quality and much of the enlarged production has come about through steps taken to promote maximum output from each operation and overall



Three block machines that produce 40,000 standard units per day. Mixers are overhead. Note horizontal string on each machine to strike off burrs as block are moved forward for racking

organization of manufacturing procedure.

It is our purpose herein to consider methods employed to maintain and increase quality control and the simultaneous means to secure and sustain the maximum in plant production as demanded by the building industry. The welfare and safety of each individual employee is the prime consideration. Next in importance is quality control and the third objective sought is production. We are concerned here chiefly with new techniques and ideas that have combined to achieve the quality-production goal, that was made possible only by the development of a sincerely human employer-employee relation. This program involves vacations with pay, planned recreation, and group accident, sickness and hospitalization insurance at no cost to employees.

Production

Patents are pending on the standard "Plasticrete" cinder concrete unit, a 2-core 25-lb. block, each of which is a corner block. The unit was designed so that, in effect, it functions as an H-beam in a wall, so that any cracking, for whatever reason, will occur at the mortar joints.

Production was increased from 12,000 a day to 40,000 within the past 18 months, 20,000 units now being manufactured for each of two 9½-hr. shifts per day. This is a production schedule maintained to produce 200,000 units per 5-day week, Saturday being reserved as a maintenance day for checkover and service of machines and parts. Maintenance has been found of extreme importance and a program of "preventive maintenance" has proven necessary to continuous day in and day out production of 40,000 units.



Cubing concrete units as they are taken from curing kilns by lift truck. Cubes are then stockpiled under covered storage

One-half hour of ten per shift is set aside for cleanup, and between noon and 12:30 p.m. each day a maintenance crew takes over for complete inspection. This is repeated on the night shift. The very complete machine shop has been a lifesaver all through the war, having the necessary equipment to do all repairs, even to the manufacture of cores, mixer liners, in fact everything but build block machinery itself. A stockroom with a complete inventory of parts and supplies has been proved essential to continuous 2-shift operation. Each Saturday machines are disassembled, washed, and checked completely.

Production and maintenance come under separate supervision, but the superintendents in charge work hand in hand. The plant, in fact, has production, maintenance and utility foremen, each in charge of a separate crew and each with an assistant in training. Function of the utility crew

is to furnish a pool of men in the event of absentees and for the purpose of general utility and plant cleanup. Housekeeping is an invaluable factor in the building of employee morale and company prestige.

Total operating personnel comprises 78 men, including two crews of 19 production men, foreman and assistant, 12 maintenance men and a foreman, 12 utility men and foreman and 10 loaders. Through a general speed-up of operations, and increased overall efficiency, the productivity has been increased from 600 block per man in 1945, to 950, for those engaged exclusively in production.

Plant

Block are manufactured by three Besser Vibrapacs each served by a mixer on the floor above. As was mentioned earlier, an important contribution to quality and efficiency has been the installation of bulk cement bins

Right: Piling cubed block under covered storage

Below: Steam-cured block being transported to cubing area from which (after cubing in 4 ft. square cubes) another truck takes the cubes to covered storage





Left: Loading cubes of block by fork lift trucks to trailers in yard. One of the covered storage areas to the right. Right: Another method of loading cubed block by lift truck on to trailers carrying 1200 units

and accurate Toledo dial scales for accurately proportioning of both aggregates and cement to an electrically-propelled weigh hopper which charges the mixers, arranged in a row.

All three of the block machines have had their capacities increased over the rated 600 units per hour to an average output of 700 units, through substitution of larger drive sheaves. They have produced as high as 720 units per hour. Another change effected at the machines has been adaptation of the pneumatic off-bearers to the handling of two pallets at a time on to the curing racks, by the simple addition of a spring steel extension to each off-bearer. The work for the machine-man actually is cut in half in his being able to handle six 8's, four 12's or twelve 4's at a time on to the racks, thus contributing to better performance.

The conventional 72-unit rack of two years ago has been replaced by one holding 90 units, more than a ton

of concrete to a rack, in order to increase capacity within the existing kilns. A counter on each off-bearer is pressed by the operator to record each rack he has loaded.

One important innovation, and one that has paid good dividends, is the stationing of an inspector at the machines. His job is concerned with quality. He checks the heights of units and their texture, their condition on the racks before release to the curing kilns, moisture content and he is responsible for the prompt cleanup of plastic concrete accumulated on the floor from feed drawer spillage and broken units. A reduction in culls from 300-400 a day to the low average of 150 per 40,000 units, alone, more than justifies the addition of an inspector.

Two years ago, two mixers of 42-cu. ft. capacity served two block machines since replaced by two Vibrapacs, and a 60-cu. ft. mixer charged the single Vibrapac then in operation. Mixing

capacity has been increased by installation of two specially-made mixers of 72-cu. ft. rating and one of 60-cu. ft. to meet increased requirements and to provide excess capacity to enable more thorough mixing. The mixers are charged to a level below the shafts. A manually-operated counter records the accumulative number of batches to each block machine. Incidentally, production requires an average of 650 cu. yd. of raw cinders per day and the equivalent of 1800-1900 sacks of portland cement, depending upon the size of units produced.

Handling

Industry-sponsored research on the subject of high temperature, accelerated curing of concrete masonry units has been conducted at the Plasticrete plant, among others, and curing methods at the plant are now in process of change based on the findings. New kilns are under construction but the eight in service have been successfully operated to produce a unit meeting A.S.T.M. 1000 p.s.i. grade "A" compressive strength requirements and specified moisture requirements at delivery. Accelerated temperature curing, the adoption of the 90 unit rack and tremendous covered storage have been necessary to do so. Curing temperature was maintained at 200 deg. F. inside the kilns and a combination of high early strength cement plus calcium chloride are used to hasten the curing cycle.

With a steaming period of three to four hours, a compressive strength of 600 p.s.i. is attained, increasing to 1000 p.s.i. in undercover storage over a period of two or three days in the summer and a longer period in winter. A kiln is filled every hour, the operation being so staggered between night and day shifts and off hours that 13 kilns are filled per shift. No units are delivered until cured the necessary time in storage. Recently, two 100-hp. Bigelow oil-fired, high-



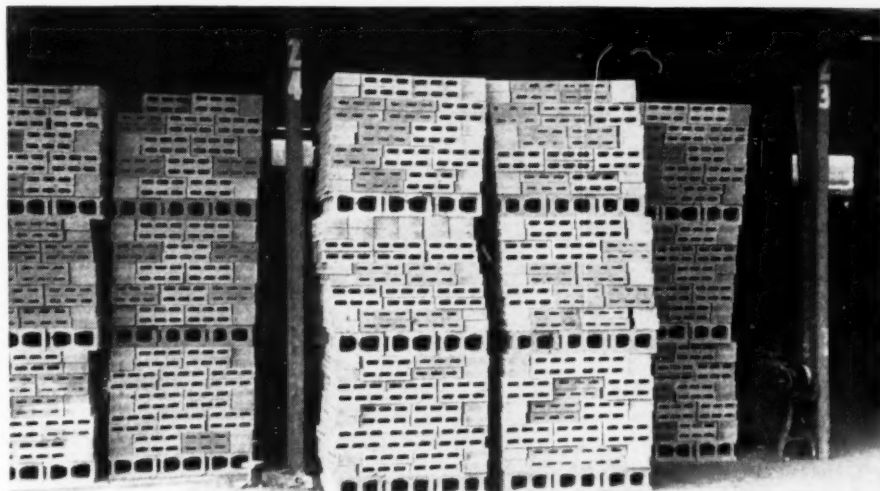
Batching floor with three mixers and travelling batcher. Scale for weighing materials may be seen in the background

or low-pressure steam boilers were installed, and construction started on high ceiling kilns that will supplement the curing in the existing kilns. After completion of the existing cycle under low steam pressure, units will be cubed and stacked inside these new kilns of 46,200 block capacity where high pressure steam from the second boiler will complete the curing to 1000 p.s.i. compressive strength upon removal from the kilns. The exact process will be determined after research now underway is completed.

Yarding-Cubing-Loading

Greatest progress has been in handling and loading of units, cubing on a mass production basis being chiefly instrumental in reducing these costs 40 to 50 per cent. The entire area inside the plant, around it and under the covered storage area is concrete paved, and lift trucks and fork-type lift trucks are employed exclusively for handling. Cubing has been of particular value also because operations must be continued in a limited area.

Lift trucks handle loaded racks into the kilns and a Towmotor transports loaded racks to the cubing area alongside the storage area. The cubes, 90 units to a 4-ft. cube, are stockpiled three high under cover. Covered storage is provided for 250,000 units. Two Towmotors load cubes on flat bed trucks.



Stockpile of cubed units under covered storage

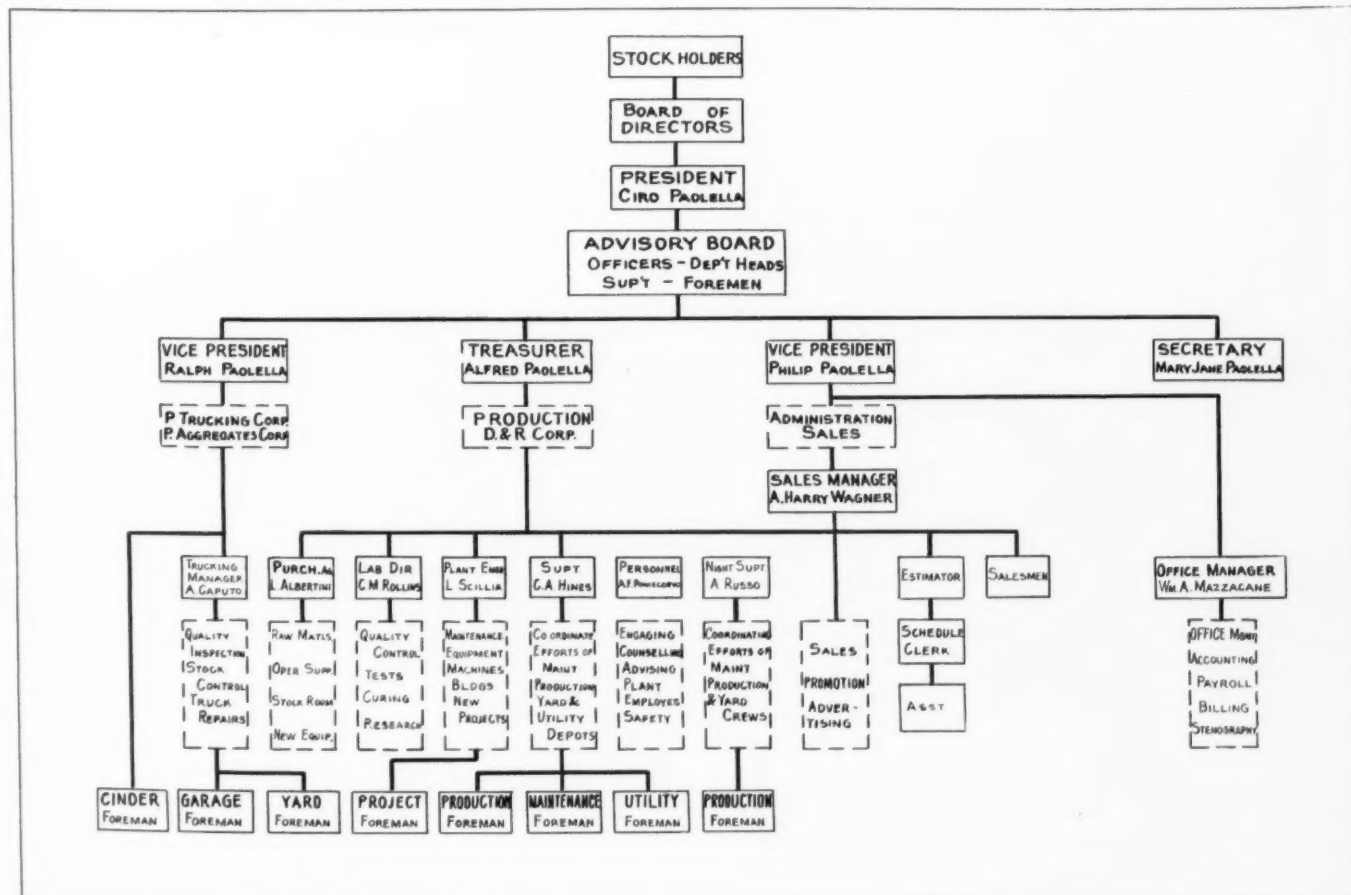
The same number of men (10) formerly required to load 10,000 units per day now load 40,000 units per day. Three men will cube 20,000 units in 9 hr. and 1200 units are loaded on a flat bed truck in one-half hour. Four loading bays under cover permit driving the lift trucks right on to the flat bed trucks, thus eliminating all lifting.

Proper and necessary interlacing of the units in the cubes (see illustration) is required for stability on the long hauls. Tie strips are bound

around the top course of cubes of half block and 4's, 8- and 12-in. units riding satisfactorily for 100 miles without tying if piled properly. The flat beds on the trucks have a ¾-in. projection along their sides to "toe in" the cubes.

Practically all units are delivered in company-owned trucks, the fleet comprising seven White tractors and nine Trailmobile trailers—and five dump trucks for short hauls and

(Continued on page 189)



Organization chart showing how completely the plant official staff and personnel has been integrated for efficient operation

"Prescription" CONCRETE

W. E. Anderson Sons Co., operating a fleet of 21 transit mixers, designs and controls concrete mixes to fit any specification or job condition

OPERATING a fleet of 21 Jaeger transit mixers from any one of three batching plants located in the Columbus, Ohio, area, W. E. Anderson Sons Co., Columbus, Ohio, sells concrete on the basis of volumetric proportioning, cement content per cubic yard, or on a strength basis.

Although there are only ten standard or commercial mixes used for ordinary construction jobs, the company within the last year has inaugurated an additional service of design and control of concrete mixes to fit any particular specification or to serve any special purpose or difficult job condition. Mixes sold on the basis of 28-day compressive strength are designed with a factor of safety, and test results are on the basis of field made specimens cured and tested under standard laboratory conditions.

For the purpose of better job control, only Portland Cement (Type I) is used for all purposes. Air entraining, high-early-strength or any other special type of concrete is produced through the use of properly proportioned and accurately controlled

admixtures, air entraining agents and/or additional Portland Cement. Indoor and outdoor air temperatures, job conditions, placing and curing conditions, length of haul, grading and type of aggregate-cement content per cubic yard, and end use of the concrete, are all given consideration and used as factors in the design and control of all concrete for special purposes. Special devices and control charts have been developed and are used in the production of all concrete using additives. Field results are assured through the use of accurate design, and careful job testing methods. The design of all mixes is based upon accepted concrete engineering practice, and all materials are weighed batched.

When an order is entered with the company, it is first routed through the central office where the engineering department determines whether a standard or commercial mix may be used, or whether the concrete should be specially designed. All specially designed mixes are carefully checked in the office, field and laboratory and



O. H. Seeger, engineer

a detailed job record is maintained for future reference. The company engineer spends most of his time in the field following the preparation of these mixes, observing all the conditions under which the concrete is used and conducting field tests for maintaining accurate job control. Such factors as slump, the method of placing, finishing and curing; subgrade condition; and temperatures are all recorded. If air entraining concrete is being used, air content tests are made on the job. Still a further check is obtained by making test cylinders at regular intervals of all standard or commercial mixes as the concrete is delivered on the job. Each batching plant keeps a permanent record of each load of concrete. This record includes information such as the truck number, number of yards, mix data, water added at plant, temperature of aggregates and water in winter only, and other pertinent data regarding any additives, for each batch. A permanent record of the original order is likewise maintained in the central office.

Dispatching Trucks

Inasmuch as ready mixed concrete is a service, the proper dispatching of all delivery equipment is of utmost importance in order to insure that the concrete reaches the user at the time he had designated. One man in the central office is solely responsible for this important function of each day's business. His work is closely connected with that of the order clerk who receives the orders and properly records all details of the type of concrete, time and delivery, point of delivery, rate of pour, number of yards, etc. The central office has a private line telephone connection with each of the three batching plants in order



Left: North Side batching plant with storage bins to the left, new concrete bin for cement storage on the right. Right: South Side plant, showing cement storage bin to the left and aggregate bins to the right. Batcher may be seen below aggregate bins

BATCHING



East Side plant, showing truck discharging aggregates to elevator hopper, to the right, and to the left may be seen mix truck taking load of concrete

to facilitate the operations of the dispatcher. This company is of the opinion that this is one of the most important phases of its operations and in fact feels that a breakdown of proper and prompt delivery service would jeopardize its very existence as a ready mixed concrete operator. The dispatcher is also assisted by men in the field who visit all the larger jobs, and report by telephone to the dispatcher any unusual or important job conditions affecting the delivery of the concrete. These men also check any jobs where the delivery equipment is delayed in returning to the batcher plant beyond the normal time required for delivery to any given job.

Sales Promotion

All sales promotion is accomplished through personal contact, by a staff of four salesmen. Most prospective customers are located through personal contact with the architects and engineers or through information in trade publications. One unique feature of the company's sales policy which is also in line with the company's policy of checking on the utilization of their mixes is its practice of having each salesman follow up his orders by personally supervising the delivery of the concrete. In this way they not only can see that the sales promises are fulfilled and have a check on the manner in which the concrete is poured, but the salesman on the job advises the batching plant on the amount of concrete that will be needed to complete each pour, thus eliminating delivery of excess concrete or more than one return trip with fractional part of a load.

The three batching plants from which the company operates its trucks are located in three different sections of Columbus; on the north side, on

the east side and on the south side. In this way trucks may reach almost any point in the city without having to travel through congested districts, and can deliver more pay loads per mixer per day. The greatest percentage of the company's business is located within a ten-mile radius and requires a maximum of about a one-hour haul. An additional 10¢ per cu. yd. mile is added to the haulage cost for any distance over this ten-mile radius. Each plant keeps a record of the time of departure and return of each truck, and each driver is given a form on each delivery to explain any delay or waiting time. Time allowed for pouring is 10 min. per cu. yd. of concrete, and a contractor is charged for any delay due to his lack of preparation for pouring.

Method of Handling Aggregates

Two of the batching plants are owned by the American Aggregates Corporation and operated by the W. E. Anderson Sons Co. Both of these plants are adjacent to crushing and screening operations of the American Aggregates Corporation and aggregate is supplied directly from the screening plant to the storage bins of the batching plant by belt conveyors. The third plant is owned as well as operated by the W. E. Anderson Sons Co. At this plant the aggregate must be supplied from one of the other two locations by a fleet of the company's dump trucks. Aggregate for this plant is dumped from the trucks into a hopper that feeds by gravity to a belt conveyor. The belt conveyor then carries the material horizontally to the boot of a bucket elevator. This elevator carries the material up 55 ft. and discharges it into a swing chute over the bins thus permitting discharge into any one of four storage bins. Three sizes of coarse aggregate and concrete sand are stored in the bins. The top size range of the coarse aggregate is 1½-in., 1-in. and ½-in.

The smallest size is used in blending and for pea gravel topping mixes.

All three plants use weigh batch scales to proportion aggregates, and cement. A push button starts the screw conveyor supplying cement to the weigh hopper with a cut-off on exact weight automatically actuated by a photo electric cell. Water is proportioned by volume. All weigh batchers have a capacity of $3\frac{1}{2}$ cu. yd., and are so designed as to permit the charging of aggregate and cement separately, or by "ribbon," into the mixer below. All materials and water are charged into the mixer at one point. Bulk cement is used at all three plants with a total storage capacity of approximately 4000 bbls.

Winter Operation

During the winter, steam jets are used in the aggregate bins, and steam pipes pass through a heat exchanger to heat the water for the mix. The company engineer has worked out a set of charts to aid the operator in supplying the mix to the trucks at a 70 deg. temperature. With the known factors of outside air temperature and the temperature of the aggregates, the batcher operator can at a glance determine from the charts the temperature of the mixing water required to produce 70-deg. concrete. A cold water blending valve is provided just ahead of the water measuring meter thus enabling the batcher operator to blend in cold water if required. Thermocouple thermometers have been installed in the water lines for visual determination of the temperature of water as it is entering the mixer truck. Concrete is heated when the outside air temperature is below 45 deg., and every facility is provided to uniformly produce concrete at 70-deg. temperature.

Scope of Operations

In addition to ready mixed concrete, the company operates a hauling service with 23 dump trucks which are also used in the delivery of hot mixed asphalt from two permanent plants owned and operated by a subsidiary company, The Columbus Bituminous Concrete Corporation, located at the south edge of Columbus, Ohio.

Since the retirement of W. R. Anderson several years ago, the company is now operated as a corporation under the name of W. E. Anderson Sons Co., with Ralph H. Anderson as president. Within the past several months a new office building and an addition to the storage and service garage have been constructed to extend the service and facilities of all phases of the company's operations. In November of 1945, O. H. Seeger was employed as the company engineer in charge of concrete operations including the design and control of all concrete mixes.

OFFICE COPY

MAin 3233

4 Conveniently Located Plants

W. E. Anderson Sons Co. **PRODUCERS OF**
FORMERLY MIXED CONCRETE CURB **READY MIXED CONCRETE**
390 HARMON AVE.

Columbus 8 Ohio. _____ 194__

Sold to _____

Del. to _____

Truck No. _____ Cust Order No. _____ Am Job _____ Lv Job _____

| CUBIC YARDS | MIX OR STRENGTH | SLUMP | GRADE, HAZARDS | REMARKS |
|----------------|--------------------|-------|-------------------|---------|
| | | | | 4 |

EXTRA MATERIAL _____

UNLOADING TEN (10) MINUTES ALLOWED PER CU YD OF LOAD CONTENT
 OVERTIME CHARGED AT RATE OF \$4.00 PER HOUR
 THIS CONCRETE DELIVERED IN ACCORDANCE WITH ABOVE SPECIFICATIONS ANY ALTERATION
 AT THE JOB RELIEVES PRODUCER OF RESPONSIBILITY FOR DESIGNED STRENGTH
 Rec'd. _____
 By _____

L 00952

Shipping record for concrete. More detailed records are kept in the office of each order

Big Year for Concrete Products

Production in 1947 expected to go over billion units. Elimination of strikes and machinery deliveries required to meet goal

IF PREDICTIONS of those manufacturers of concrete products, largely concrete masonry, who replied to the editor's request for opinions on business conditions and comment on labor and plant rehabilitation, are fulfilled, the year 1947 will witness the establishment of another all-time annual production record. Certainly, the annual record for concrete masonry production will be broken and, judging from the enthusiastic expression of practically all our correspondents, the billion unit (8- x 8- x 16-in. or equivalent) goal for a single year will be far surpassed. However, anything can happen in the course of a year and much depends upon the elimination of paralyzing strikes, the availability of men and machinery, the government's attitude and, the reinstatement of something like normal labor productivity.

Manufacturers of all classes of concrete products were asked to reply to the same questionnaire submitted to producers of portland cement, aggregates and other rock products (see article on outlook in this issue). The questions were eight in number and the comments received, for which we are most grateful, are the foundation for this article. The questions, comments and our summaries and observations follow.

What are the prospects for business in 1947? How will volume be proportioned as to public works and private building? As to highways, industrial building and residential?

Ninety per cent of the total number of replies definitely predicted "good" or "very good" business, or improved volume of business, which we assume indicates that 1947 will be an improvement over 1946. Eight per cent anticipate that the first six months of 1947 will be a period of excellent business followed by a recession of mild proportions. One company stated definitely that a decline in 1947 volume as compared to that for 1946 is anticipated and one reported evidence of a decline already. The foregoing cannot be considered as necessarily a true indicator for the industry, for the editors, in their travels, have observed unreported instances in large metropolitan areas, particularly, where the demand for concrete masonry units has declined to the point where orders are being filled almost immediately. A few months ago, at

these plants, there had been a large backlog of orders on hand and purchasers were subjected to priority delivery. Yet, in the same areas market evaluation studies have disclosed a needed annual volume of concrete masonry units *exceeding by several hundred per cent the highest yet produced in a year.*

Total volume for 1947 will be determined to a great degree on the solution to problems now existing for all business—prices, shortages, labor's attitude, etc.—and also on the accomplishment of new concerns in the industry. Many new companies have had no experience with Winter operation and, we fear, may not attempt to continue operations during the cold weather period. In anticipation of heavy demands in the Spring and Summer of 1947, these plants are urged to continue operations to the extent that it is practicable to do so, in order to build their supplies of thoroughly cured units in stockpile so as to augment the national supply on hand. This is by no means a seasonal industry, as far as manufacture is concerned, and a little more knowledge and closer attention than ordinary to the fundamentals of curing concrete adequately, and the installation, or improvisation, of protective covering, will enable year-around operation and aid the industry immeasurably in fulfilling obligations that it must assume.

Nationally, it appears that volume of business will be divided fairly equally between public works construction and private building, with wide variations in proportions as reported from various sections of the country. A Virginia manufacturer, for example, anticipates that 90 per cent of total volume will be in private building, substantially all residential. A concrete pipe manufacturer in Michigan estimates that 90 per cent of his volume will be in public works, of which 40 per cent will be in connection with highways and 50 per cent in sewer construction.

Material shortages and high costs, also high prices for construction, are some of the handicaps that qualify predictions for good business conditions in 1947. High cost in training new help, with the floating type of labor so common today, is another deterrent. Contractors very definitely still cannot always be certain of fin-

ishing jobs they have started, without having to resort to black market prices.

A manufacturer of concrete meter boxes, roofing tile and precast steps in the South, in reporting 100 per cent better business than a year ago, very wisely commented, "There are so many things that concrete manufacturers should be making and selling, as sidelines—water-proofing, steps, flag stone, highway markers, roof slabs, window sills, floor tile—in fact almost anything. We sold 300 bird baths this year and plenty of park benches and fence posts.

"The block manufacturers in our city can produce 61,000 units a day (population approximately 300,000—the editor), moreover there are block plants in all the towns throughout the State. You can see what will happen to people who depend on the block business exclusively."

The foregoing suggestion for diversification has a great deal of merit and should be given serious consideration, particularly by new concerns which have begun the manufacture of concrete masonry units with permanent intention. Many of the very large concrete masonry unit manufacturers—shipping millions of units annually—are fitting their operations for diversification. They recognize that other concrete products than masonry units afford a fertile field.

The removal of restrictions since the Republican election victory is expected to improve building markedly, say many concrete masonry unit manufacturers, including some from the Democratic South. Those few who forecast a recession for the latter half of 1947 do not look for a serious retardation of building, but apparently consider 1947 to be a year that will be one of great adjustment. Many so-called nationally-known prognosticators have said as much in the daily newspapers.

One producer in Iowa who normally concentrates heavily on other than residential construction, is operating only at 40 per cent capacity. Without restrictions, now in process of removal, from 60 to 70 per cent of his volume is in industrial and commercial construction.

Shortages of lumber and portland cement, both of which we soon expect to alleviate, have retarded all construction, to say nothing of shortages

of windows, plumbing fixtures, etc., which have been experienced country-wide. And the degree to which labor will go to work will have decided bearing on the 1947 building program, say those who qualify their predictions of excellent building prospects.

An Iowa manufacturer of concrete masonry units remarked: "... we may expect slowly improving conditions for business. The new Congress will sweep out what is left of the New Deal and, after a short period of general confusion, we will settle down to good, healthy high-speed production. Prices may fluctuate for awhile but will soon stabilize and then gradually become lower.

"... Would rather expect the national debt to be set up as a permanent debt which will pay interest only. If this is done, the taxes can be reduced quite considerably. But if taxes continue at high levels there will be no incentive for business and we can then look for a general depression in about 20 months. The national debt and what to do about it could very easily be the big issue in the coming presidential election. This will be a year dedicated to clearing up the fog. In a general way, business should be good. ..."

A Michigan manufacturer, who views the outlook pessimistically, said in part:

"... Block will be a drug on the market and prices will sag badly as ill-advised operators think they can stay open by cutting prices to the point where there is no consideration given to depreciation and obsolescence. ...". This producer admittedly is in the minority that anticipates a depression in 1947, but his remarks on the subject are worthy of contemplation. Price cutting that has wiped out all profit has hurt the industry badly in times past, when available volume of business was insufficient for existing plant capacity.

What will be the principal handicaps to operation in a boom year, as you see them now?

An almost unlimited list of handicaps prevail, just as they do in the rock products industries. Scarcity of labor, its unproductivity, and all the shortages of equipment, repair parts and cement top the list, according to the number of times they are mentioned. Many producers comment on the shortages of lightweight aggregates, and even on the scarcity and inferior quality of some so-called heavy aggregates.

Floating labor has necessitated costly and repeated training expense and, through lack of worker experience, has contributed to many unnecessary breakdowns in plant operation. Labor's technique of getting the "most-for the least" is without question a serious factor in unnecessary high cost, and constant demands of union labor for still higher wages, if continued, may well alter the optimistic predictions for 1947. The sup-

ply of skilled labor—masons, carpenters, etc., in the building trades—must increase to keep pace with the building demands in 1947 and the years following. Strikes in cement plants and quarries have temporarily slowed operations in some plants in areas so affected.

The labor situation, while it may cause serious complications, apparently will not be the most severe handicap to doing business in 1947. Shortages of repair parts, machinery, transportation, aggregates and the forced necessity of being compelled to sustain top production with old machinery comprise the real threat. The industry as a whole fears that unpreparedness to fulfill 1947 demands will result from failure to secure replacement machinery and additional equipment in time. The cement shortage, which caused reductions in production as much as 20 per cent for some concerns for the entire year 1946, will not be a serious factor in 1947.

How do prices compare with 1940 standards?

The increase in prices, comparing the years 1946 and 1940, evidently has ranged, on an average, between 10 and 20 per cent. A few manufacturers enjoyed slightly higher increases, offset by a few others who had only a five per cent increase and by exceptions where prices have remained the same.

On the other hand, costs as itemized by quite a number of manufacturers have increased all out of proportion to price increases of two or three cents per 8-in. standard unit. The range in cost increases varied widely. Some claimed that overall production costs increased 100 per cent or nearly so, during the past six years; various other estimates ranged from 20 to 50 per cent up, in considering all cost elements. Typically, a Virginia producer said that raw materials had advanced 25 per cent in price, labor 50 per cent, machinery 50 per cent and repairs 100 per cent. The combination of high wage levels and low labor efficiency has contributed to increase of labor costs in the neighborhood of 75 per cent or even more according to some manufacturers of concrete masonry units.

Many companies could give no comparative figures on costs or prices since they were not in business in 1940. One commented that, while he had no competition yet, he was contemplating a sales program in contemplation of a possible buyers' market late in 1947 or in 1948. The practice of merchandizing intensively is, of course, a necessity (temporarily overlooked) and insurance of further business.

One of the newer concerns (Illinois) commented, "In our business, I believe we have all underrated the job which concrete masonry units are doing, and we have in the past been putting too much effort into how

cheaply we could produce, rather than how well we can produce and then get a fair price for our efforts."

Another manufacturer, from Florida, in commenting on the failure of price controls to give consideration to differences in quality of products the past few years, said in part:

"... A cheap block under price control sold for the same price as a quality block, yet the quality block costs 2½¢ to 3½¢ more per unit to produce. When the profit incentive takes hold again, quality concrete building materials will become the rule and not the exception. Then far sighted business men and house builders will be induced to build because of the durability of concrete units. ..."

What fraction of total unit cost of your product is represented by labor (exclusive of executives)? How does this ratio compare with 1940?

Many companies have not been in business long enough to draw cost comparisons for the years 1946 and 1940. Sufficient returns were received to calculate averages that apparently closely represent industry experience. The average fraction of total unit cost per unit of production represented by labor, for 1946, was 33.1 per cent, comparing with 23.9 per cent in 1940. That increase represents 38.5 per cent.

These data appear significant for, ruling out those few returns which obviously were not clear or incorrect, the range in unit cost as represented by labor in 1946 was within close agreement. The low was 20 per cent and the high 50 per cent, the majority falling within the 30-40 per cent range, very close to the average. In fact, 55 per cent of the data submitted fell within the 30-35 per cent range, indicating substantially that one-third of the cost of manufacture of a standard concrete masonry unit is represented by labor. There also was a close range in the 1940 data.

A few companies indicated that the fraction of cost represented by labor has not changed, 1946 figures compared to those for 1940, due to the fact that labor-saving equipment and methods have been incorporated into their plants. In other companies, the difference in labor ratio per unit of production has been slight, but only due to the fact that 1946 volume of production has far surpassed that for 1940.

Thus, it has already been proved, under today's conditions of high labor rates coincident with inferior individual productivity, that modern machinery and plant layout with heavy volume production will be the important factor in the future success, profit-wise and competitively, of the industry. Obviously the company that will rehabilitate plant operations to cut the unit labor cost, say the amount of the 38.5 per cent increase for 1946 over 1940 (it's been done) or close to

(Continued on page 187)

NEW MACHINERY

Haulage Unit for Air-Entrained Concrete

MAXON CONSTRUCTION CO., INC., Dumperete division, Dayton, Ohio, has brought out a specially designed truck body for the hauling and placing of air-entrained concrete.

This equipment has a 6 ft. 3 in. dis-



All-welded haulage unit for air-entrained concrete

charge for the 4-cu. yd. size and 4 ft. 9 in. discharge for the 2-cu. yd. size, and the dumping angle is 90 deg. There is a positive cut-off gate and a folding chute with 180 deg. horizontal swing and full vertical adjustment. The body has rounded interior corners, deflector plates, inverted center keel and adjustable baffle, all of which are designed to aid a clean discharge. The haulage unit may also be used in stockpiling sand, gravel, earth or coal.

Automatic, Plain-Pallet Vibrating Stripper

LITHI-I-BAR Co., Holland, Mich., manufacturers of the continuous concrete joist machine previously described in ROCK PRODUCTS, has announced its Lith-I-Block machine. It is an automatic, plain-pallet, vibrating stripper machine. Pneumatic operation of the automatic pallet feed, the stripper head, the pallet support and the feed draw is said to reduce maintenance to a minimum.

The machine produces two 8-in. block per cycle of operation with a rated capacity of 480 8-in. block per hour. All standard sizes of block, as well as brick and chimney block can be produced on this machine, all on a plain pallet. Changes to various sizes are accomplished by merely interchanging the abrasion-resistant mold box liners and cores; usually this can be done in 10 min.

By means of an electric control switch on the off-bearing device, the operator can hold the stripper head up for inspection, removal of foreign matter, or can drop it any number of times at will.

One of the features claimed for this machine is its silent operation attributed to novel means of vibration. The vibration of the mold box is accomplished by two specially designed vibrating units mounted on opposite

sides of the mold box, each driven by an electric motor. As the vibrating cycle is adjustable in its duration, any type of aggregate may be used without any major changes on the machine, according to the manufacturer. It is said that the method of vibrating in a horizontal plane without scouring action helps to keep pallets clean.

The machine discharges pallets with finished units on a frame from which the pneumatic off-bearing device removes two pallets at a time, reducing the cycle of operation for the off-bearer by one-half.

Materials Handling

MIXERMOBILE MANUFACTURERS, Portland, Ore., has brought out a new model B Scoopmobile which is a tri-cycle type materials handling machine. Complete control of the bucket is now accomplished by means of two



Easily maneuvered haulage unit

operator to pick up a full load from a hand levers controlling an entirely new pick-up, hoisting and discharge mechanism. It is now possible for the

stockpile without "shock loading." Design of the bucket has been changed to eliminate spillage over rough terrain or to discharge partial loads. The bucket can be quickly removed and replaced with various other attachments, including lifting forks, for building materials; concrete hopper, lifting crane boom, etc.

High-Discharge Mixer Truck

CONCRETE TRANSPORT MIXER Co., St. Louis, Mo., has developed a high-discharge truck mixer with discharge on the side. The concrete is delivered



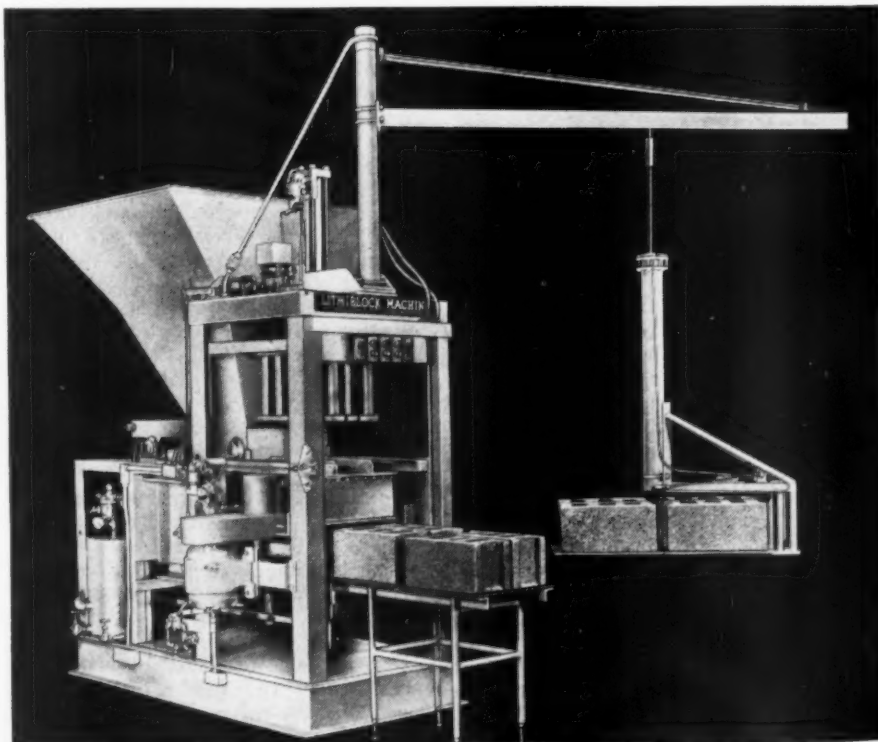
Side-discharge mixer truck

at a height up to 70 in. This is accomplished by a new arrangement of the mixing blades. These mixers are still operated by a power take-off from the truck motor which is said to give a dependable source of power and keeps the initial cost of the mixer low.

Packer Head Pipe Machine

MARTIN IRON WORKS, Los Angeles, Calif., has brought out a new 16-in. concrete pipe machine which has the packer head principle of operation, and is of all-welded construction. The hydraulic cylinders are bolted into middle cross-tie and supported by heavy welded brackets. The 15-hp.

(Continued on page 184)



Block machine with new vibrating principle

What **BESSER** has Contributed to the Advancement of the **CONCRETE PRODUCTS INDUSTRY!**

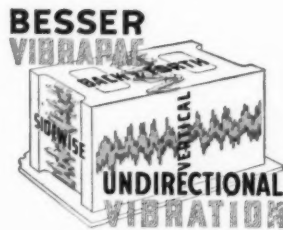
Through Besser research and development in the past 42 years, concrete block machinery has advanced from the small all-hand-power models to the present unitized Super Vibrapac.

During this period, Besser machine advancement has made possible a unit production increase from 150 — 8"

units per eight hour day to 4800 superior quality units in eight hours. Hand labor has been reduced to pushing a switch button and guiding a power offbearing hoist.

These production facilities have converted concrete masonry production from a small "backyard" occupation to a BIG INDUSTRY.

BESSER MANUFACTURING COMPANY, 201 47th STREET, ALPENA, MICHIGAN, U.S.A.



SOME EXCLUSIVE BESSER DEVELOPMENTS

PLAIN PALLETS —

The Besser patented Plain Pallet Stripper block machine proved to be the greatest advancement in concrete block manufacture.

INVESTMENT SAVING —

Making all sizes of units on one set of Plain Pallets has saved plant owners as much or more in pallet cost than cost of machine itself.

100% AUTOMATIC —

Plain Pallets made possible the 100% automatic machine, including automatic pallet feeding and easy power off-bearing.

OPERATING ECONOMIES —

Besser automatic mechanical advancements naturally reduced labor costs and increased production with resulting economy.

UNDIRECTIONAL VIBRATION —

Mold is cushioned on shock-absorbing rubber mounts, free to vibrate in any direction. This same cushioning principle is used in engine mounting.

FULLY PRESSED TOP —

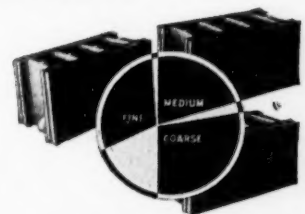
Units have smooth, even top, straight, sharp edges and accurate dimensions. Specified by leading architects and builders.

SELECTIVE TEXTURE AND DENSITY —

Units can be controlled and varied, in both density and texture, as required for sound proofing, acoustical correction, or appearance of wall finish.

TIGHT FITTING MOLD —

Plain Pallet and bottom of mold are sealed by accurate fitting contact during vibration. Semi-wet mix, for greater strength units, can be used without "bleeding" of cement, fines or water.

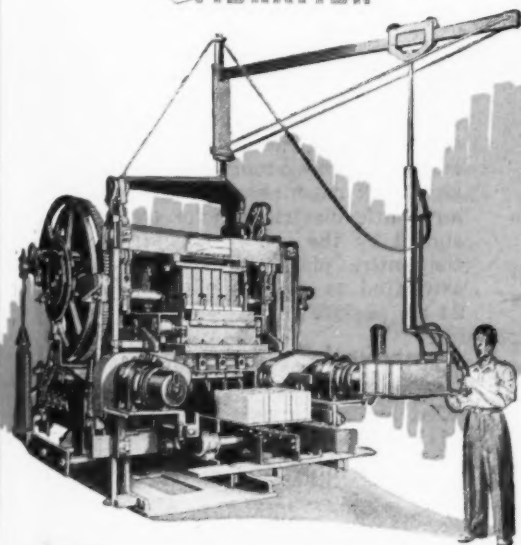


BEAUTY THAT STANDS OUT



BLOCK CUBER —

The latest Besser development. Provides simplified method for handling block by power. Also provides quick and accurate counting of block. Speeds up delivery.



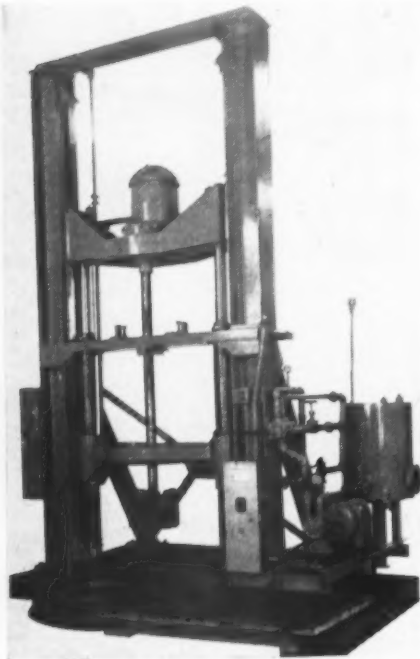
BESSER SUPER VIBRAPAC —

Makes all sizes of block on the same set of plain pallets. Block 8" x 8" x 16" are made three at a time. Smaller block made in equivalent multiples. Vibrapac fully automatic including pallet feeding. One man offbears full machine production with power hoist.

BESSER PLAIN Pallet VIBRAPACS

THE SAVING IN PALLET COST
WILL PAY FOR A
BESSER VIBRAPAC
PLAIN PALLET STRIPPER

motor driving the packer head of the geared type, self-contained and constantly lubricated. A heavy-duty pos-



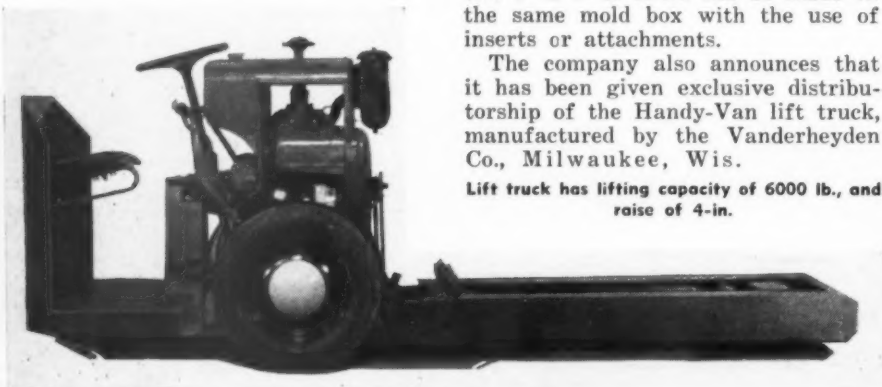
All-welded concrete pipe machine

itive displacement pump is driven by a 3-hp. motor. Oversize piping is used through the hydraulic system.

The hydraulic-lift concrete pipe making machine is designed to make joints of any length up to 36-in., and all sizes from 4 in. to 16-in. inside diameter. The time element varies from 23 to 38 seconds per unit depending upon the diameter. There are only three controls to operate; an electric start-stop switch for the motor which operates the hydraulic system, an electric start-stop switch for the motor which operates the packer-head shaft, and the hydraulic valve for control of the packerhead up and down positions.

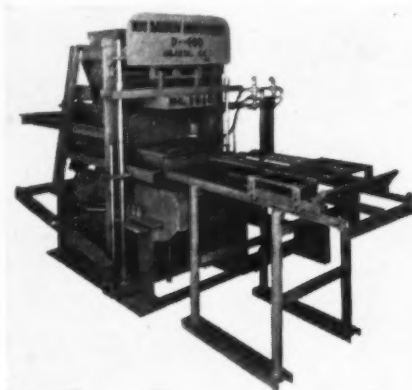
Flexible, Small Block Machine

ROY DARDEN INDUSTRIES, INC., Atlanta, Ga., has brought out a companion block machine to its recently announced "800" model which is known as the D-400 machine. It op-



Showing how concrete block are handled on a roller-conveyor cart to storage

erates on the same principle as the Rockercrte model. The manufacturer stresses the fact that it is a "residential" block machine, and that it has an easy cutting plane on both the 5- x 8- x 12-in. and the 5- x 4- x 12-in.



Make various sizes on block machine with same mold box

block. It is said that the machine will easily produce 400 of the 5- x 8- x 12-in. units per hour, and two 5- x 8- 12-in.; one 5- x 8- x 12-in.; one 5- x 8- x 10-in.; or one 5- x 8- x 12-in. and two 5- x 4- x 12-in. can be made on the same mold box with the use of inserts or attachments.

The company also announces that it has been given exclusive distributorship of the Handy-Van lift truck, manufactured by the Vanderheyden Co., Milwaukee, Wis.

Lift truck has lifting capacity of 6000 lb., and raise of 4-in.

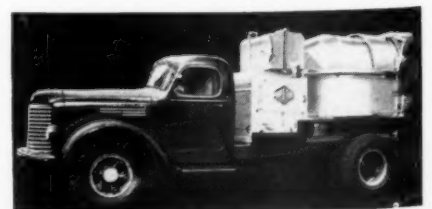
High-Capacity Small Block Machine

HOLLOSTONE Co., INC., North Hollywood, Calif., is a manufacturer of block machines and mixers as well as one of the largest producers of block in California. Its remodeled plant will include a bulk cement silo, automatic weigh batching equipment, five 1-cu. yd. paddle type mixers, and 10 block machines. Automatic controls eliminate the necessity for a man for each mixer. Raw materials will flow from the central batching plant via conveyor and gravity to the five mixers designed and built by the company. Each mixer will dump on to a conveyor belt sufficiently large to hold one batch of concrete. Concrete is distributed by a smaller reversible conveyor belt which feeds either of two Hollystone block machines. Conveyors and block machines are controlled by automatic electric control panels designed by the company. Capacity of the entire plant when completed is estimated as 108,000 8-in. units in a 24-hr. period.

Improved Truck Mixer

THE T. L. SMITH Co., Milwaukee, Wis., has announced that its new line of high-discharge truck mixers will have larger drums with increased capacities, conforming to the new N. R. M. C. A. standards. Four sizes

(Continued on page 186)



Mixer unit with large drum

Why **AQUELLA** is a "must" on every concrete masonry unit job!

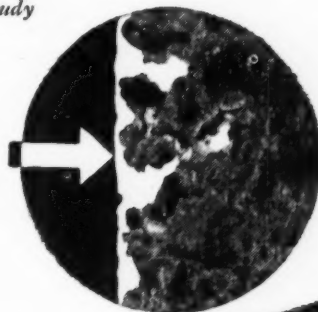
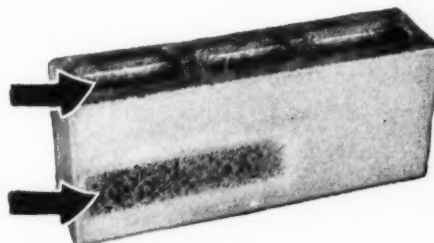
As everyone in the construction industry knows, the water permeability of light weight concrete masonry units leaves no room for argument! The only possible argument lies in the means and methods of applying an *effective* water barrier to this excellent construction material.

You are well acquainted with the claims made for the many materials designed to "waterproof" concrete masonry units.

But despite these many materials there must be a reason why Aquella is being so widely used throughout the nation today and acclaimed by home owners, architects, engineers, waterproofing contractors and builders! The answer lies in the simple fact that it works on an *entirely new principle!*

To Illustrate:

- 1 Here is an Aquellized concrete masonry unit filled with water. Naturally, there is no leakage.
- 2 But what happens if the Aquella surface coating is scraped off? To answer that, we scraped away this portion, and there's still no leakage. This may be slightly puzzling until you study the photograph of the third step...
- 3 The enlargement of a small, sawed-away section of the above block, which shows the way Aquella penetrates to fill and close the microscopic pores of the surface. It is the filling of the pores—not essentially the surface coating—which stops the penetration of water.



Is it any wonder then, that in a cinder concrete block tower test, Aquella withstood the pressure exerted by an 8 ft. hydrostatic head of water, equivalent to approximately 500 lbs. pressure per sq. ft. at the base?

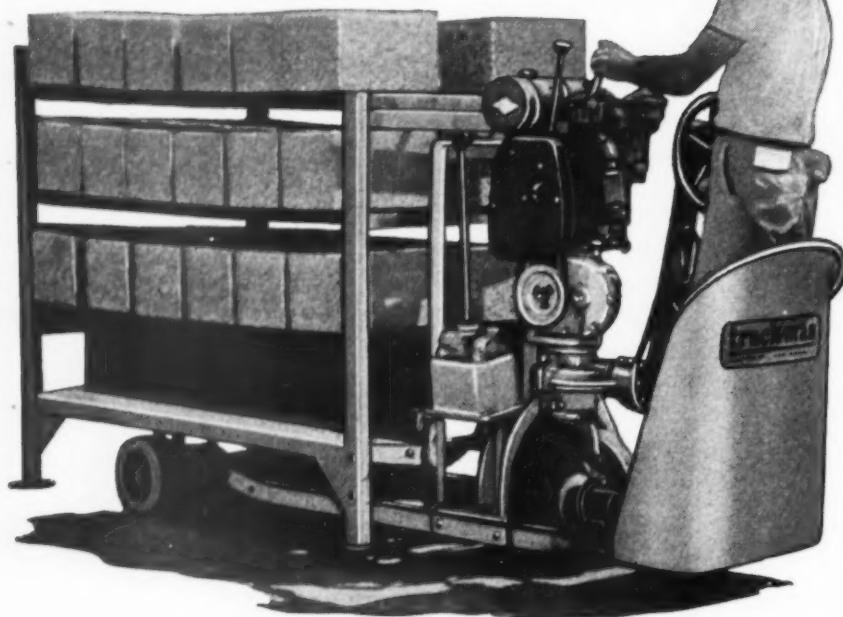
We would like to send you details of this test. It is contained in our booklet, "Aquella and Concrete Masonry Construction." This booklet also

contains many illustrations of the uses of Aquella in concrete masonry construction throughout the United States, and should prove very interesting to all in the construction industry. It is yours for the asking.



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- Turns in 360°—snakes into holes its own length—increases your usable space . . .
- Handles without body movement. Grouped controls speed operation, cut fatigue . . .
- Speeds briskly on straightaways—creeps in narrow quarters and close squeezes . . .
- Drives on big DUAL pneumatic-tired wheels for traction and easy riding. Solids carry the load . . .
- Stands the gaff—tireless, day in, day out! TRUCK-MAN is EASY TO BUY, ECONOMICAL to operate . . .

\$775⁰⁰ IF TIME AND MONEY MEAN ANYTHING TO YOU, TRUCK-MAN welcomes your inquiry and investigation. Write now for descriptive bulletin. Limited open territory for substantial distributors.

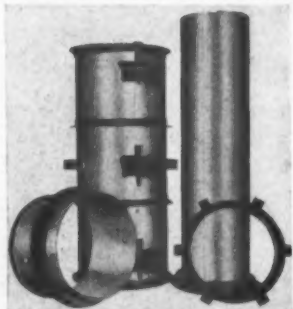
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Typical Atlas Concrete Pipe Form. No clamps, hooks or gadgets to get out of order.

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YOU SAVE Time and Money with ATLAS CONCRETE PIPE FORMS because you can count on them to stand up under hard usage, hold their shape and turn out high grade pipe over a long period of time . . . pipe which is smooth, round and true with joints that fit accurately together.

Operation is speedy both in setting up, filling and removal of pipe. Write for complete facts. Ask for illustrated bulletin.

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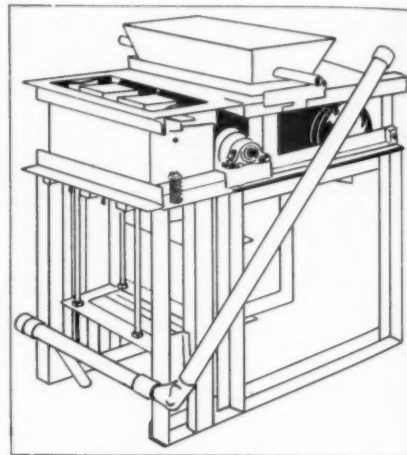
13,000

readers

will be available: 2-cu. yd., 3-cu. yd., 4½-cu. yd., and 5½-cu. yd. truck mixers; 3-cu. yd., 4¼-cu. yd., 6¼-cu. yd., and 7¾-cu. yd. agitators.

Two Vibrator Block Machines

MANUFACTURER'S SUPPLY Co., Syracuse, N. Y., has designed and is now manufacturing two models of vibrat-

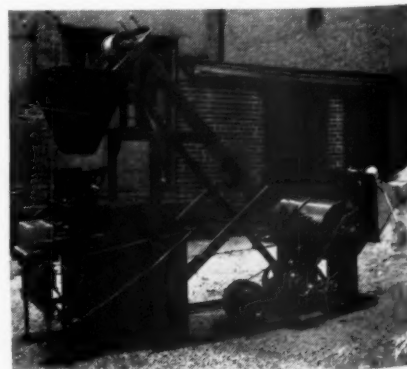


Model known as the Whippet Speed-Pack

ing type block machines. The Ryan Speed-Pack is a flexible machine of the powered vibration type, capable of a daily production of 1200 block in one 8-hr. shift. It is claimed that all types and sizes of block can be made on the machine. The Whippet Speed-Pack also is a powered vibration machine designed especially for the three-opening, 45 per cent air-space, 8- x 8- x 16-in. block.

Compact Block Machine

CONCRETE BLOCK EQUIPMENT Co., Kansas City, Mo., has brought out a small compact, vibrating block machine. As shown in the illustration, the movable hopper or feed box on top of the machine is pulled over the mold box as the first step in making block. The operator then opens the clam shell gate of the large hopper above the machine and fills the box; a foot pedal starts the vibration of the box for a period of ten seconds. It is then pushed to the back part of the machine, at the same time striking off the top of the block.



Machine makes 130 blocks per hour

Outlook

(Continued from page 181)

it, will be in the best competitive position when buyer's market conditions do return.

How is the labor situation in your plants and in your locality? Do you anticipate more plentiful labor supply in 1947?

Labor supply is on the upgrade; 58 per cent of the companies replying to our questionnaire expect some improvement both in quality and quantity in 1947 as compared to 1946. It is true that the remaining 42 per cent anticipate shortages, accompanied in some sections by continued low productivity, but it is doubtful that anything like the 58 per cent who anticipate better labor conditions in 1947 would have said so a year ago. Critical shortages, however, will prevail in certain specific localities, particularly where new industry is destined to be established. There will be competition for labor in those sections.

Skilled labor remains scarcer than the common variety. It is anticipated that when "rocking chair money" paid to veterans gives out, conditions will improve. Surpluses of all classes of labor are reported in one or two instances. One of the main difficulties has been caused by the forced stoppages of operation due to shortages, making difficult the retention of the same men and necessitating the continual training of new men. To combat the unproductivity of labor, consideration is being given to incentive plans in a few cases.

What will be the effect of expected freight rate increases?

Freight rate increases, if reasonable in amount, will have little effect on the concrete products industry other than resulting in slight increases in retail prices to purchasers, due to increased costs of materials. Increases in delivered prices for cement and lightweight aggregates will be the principal factors. These increases will be slight and may have to be absorbed in areas of competitive merchandising. One producer is planning to build a sand and gravel plant in order to have a local source of supply. Rail shippers evidently will use trucks more on the shorter hauls.

Are you proceeding with plans for plant rehabilitation and what are the principal difficulties to carrying them through? Will necessary equipment and supplies be available?

Plans for plant modernization and building are going forward, almost without exception, although shortages of materials and equipment, complicated in some localities by lack of construction workers, are pushing completion dates back a year or more. Apparently nearly all concerns that have not already completed plant renovation and building have plans for improvement.

Mechanization is the dominant consideration in plans for rehabilitation,

(Continued on page 188)

COMPLETE KENT PLANTS

TO PRODUCE 1000 BLOCKS AND UP PER 8 HOUR DAY

**Now Available
on 2 Weeks
Delivery**



IMPROVEMENTS in the material situation and increased manufacturing efficiency permit us to make this unusual delivery.

Buy this complete *motorized KENT plant. Install the various coordinated machines in compact space guided by the simple and explicit instructions furnished. Everything needed is included.

Then you will be ready to make concrete products with equipment that has a record for practical and profitable production in plants throughout the country.

At less than the usual manpower cost the KENT *Continuous Mixer delivers well-mixed concrete in a steady stream to the KENT Elevator which raises it to the KENT Feeder. From this the concrete flows into the easily operating KENT Stripper. The pull of a lever brings the KENT Tamper into operation for speedy tamping of dense block. The lever-operated hopper "strikes-off" the blocks smoothly. It is then raised by an easily operated lever and swung to one side on the "off-bearer".

**You Are Invited To Visit Our Exhibit at the
1947 CONCRETE INDUSTRIES EXHIBITION —
Hotel Sherman, Chicago, Ill. Feb. 17-18-19-20.**

*Larger KENT plants are available; also units for belt drive and combinations having the KENT Batch Mixer, instead



of the Continuous Mixer. Use the coupon below to obtain any desired information quickly and easily.

The KENT MACHINE COMPANY

Manufacturers of CONCRETE PRODUCTS MACHINERY Since 1925

CUYAHOGA FALLS, OHIO, U.S.A.

Send complete information and prices as checked below.

☐ Plant illustrated above

☐ Plant with Batch Mixer

☐ Plant with belt drive

☐ Larger Complete Plants

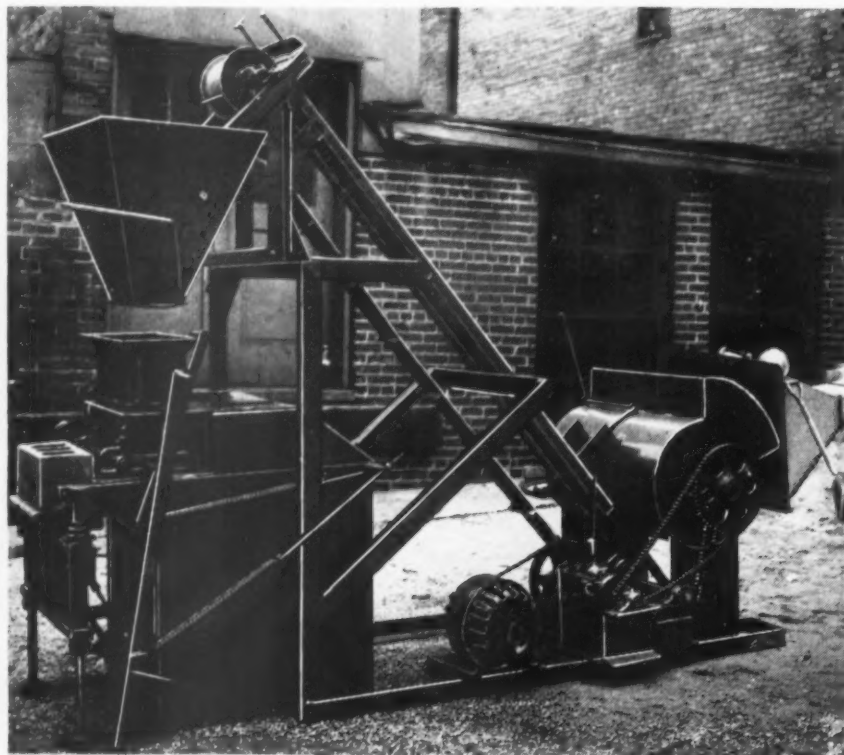
Name

Address

R. P.

City

**A COMPLETE CONCRETE OR CINDER BLOCK
PLANT IN ONE PACKAGED UNIT
PRESENTS THE OPPORTUNITY TO ENTER THE
BLOCK BUSINESS AT A LOW COST**



Yes, here's a manufacturing opportunity never before equaled. Our complete concrete block unit consists of mixer, material elevator, hopper and the famous proven Blocker Vibrator Machine. Turns out 130 blocks an hour. Needs only 3 people to operate. This unit has been paying for itself in six months so IT PAYS FOR ITSELF QUICKLY — and from then on you KEEP FULL PROFITS.

One user says:

"We are operating your machine at Junction City. Easy to maintain production of ONE HUNDRED CONCRETE BLOCKS PER HOUR PER MACHINE—often producing as high as one hundred thirty units per hour. Your Blocker Vibrator has no complicated parts. We recommend your product as a REAL practical MONEY MAKER." Concrete Products Co., of Junction City, Kansas.

CONCRETE BLOCK EQUIPMENT CO., INC.

920 Central, Dept. 105

Kansas City 6, Missouri

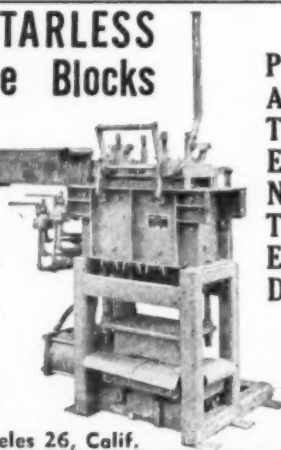
**Manufacturing MORTARLESS
Interlocking Concrete Blocks**

(Laid Without Mortar)

- Hydraulic-Powered or Hand-Operated Machines
- No Tamping; No Vibrating
- Interlocking Units Lay Up Perfectly
- Exclusive Territorial Franchise Protects You Get the Facts Today!

Mortarless Tile Machine Co., Inc.

2623 Riverside Drive Los Angeles 26, Calif.



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ROCK
PRODUCTS'
family of
13,000
readers

Outlook

(Continued from page 187)

with high productivity per unit of labor the objective. Some plants will be renovated, not to increase capacity, but only to reduce unit cost and, as was to be expected, much increase in productive capacity is being planned over the country generally. A few plants will forestall plant modernization because this is a "high cost period."

The most frequently mentioned type of improvement was the establishment of steam curing facilities and improvements to curing systems already in service. Some of the newer concerns are getting around to finding it necessary to cure by steam and, fortunately, are preparing for Winter operation. Considerable attention is being given to covered storage for weather protection.

What are your main technical problems? Will they be in connection with adjustment to changed outlets? Specifically, have you any plant operating problems as yet unsolved?

Many comments in reply to this question obviously came from new, small manufacturers of concrete masonry units, for they were elementary in character, but easy of solution as experience is gained. Among the more definite problems in need of solution, proper curing methods, material handling practices and aggregates were foremost.

Not only are aggregates often difficult of supply but, according to several of our correspondents, there are great variations in gradation and cleanness, in need of correction. Texture of concrete units and control of this property through gradation of aggregates, proper batching and mixing was mentioned as the chief problem in certain plants. The relative merits of mixing, by batches or in continuous mixers, is information sought before some plans for plant renovation are completed.

A California manufacturer is contemplating the installation of an overhead cable system for conveying units into the curing yard, but thus far claims no satisfactory hoist arrangement has been found available. Another manufacturer desires information for the conveying of materials from cars to his mixer. Another, reluctant to lay concrete runways, apparently seeks a lift truck with "knee action." He wants a truck capable of balancing loaded curing racks, in travelling over moderately rough terrain.

A very large manufacturer in the west poses this problem:

"The main problem in our business is to crush and classify our materials. Cinders are very abrasive and nothing we have used thus far has been particularly designed for this purpose. We need something that will reduce cinders from 6- or 8-in. top size down to 3/4-in. minus in one reduction. Our product calls for 3/4- to 1/4-in. size and also 1/4-in. minus. The unprocessed

material ranges in size down to dust. We screen the fines out, run them through a jaw crusher and the remainder through rolls. Some equipment should be available to accomplish our requirement in one operation, but we have never heard of a real machine capable of this, and which would stand up over a period of time."

Other problems presented were the sticking of concrete in the molds and how best to secure high early strength concrete. The need for avoidance of inferior equipment on the market was even advanced as an operating problem. Curing for optimum results was much in evidence as a problem under consideration. More generally, but significant, was the problem presented in balancing production to demand for maximum economy of labor and overhead.

Invite Comments on Industry Problems

The editors believe that articles in this issue will be of benefit in the solution of some of the problems presented in the foregoing; and invite comments from machinery manufacturers, producers of concrete masonry units, cement manufacturers and engineers that will benefit the industry generally. Of course, many operating concerns are so involved in securing equipment, labor and supplies that those difficulties overshadow any other considerations at this time, and were mentioned as the chief operating problems to the exclusion of all others, but obviously there are many and varied technical and operating problems which require solution.

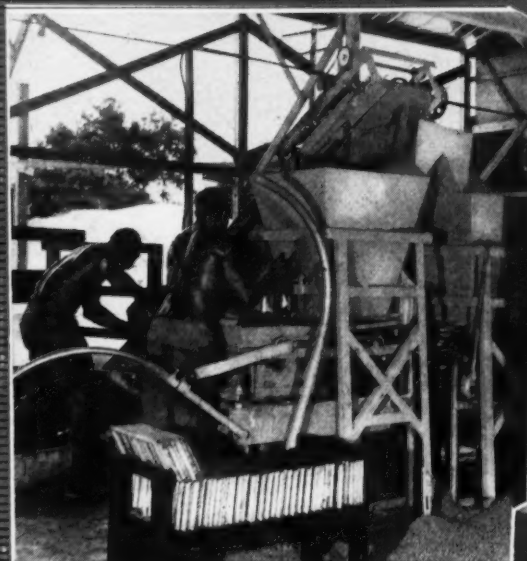
As the editor read through these questionnaires, it became increasingly apparent that concrete products firms, particularly new ones, are badly in need of advice and guidance on plant operation that only may be secured through interchange of ideas. Membership in the National Concrete Masonry Association, attendance at its national conventions and participation in discussion, both in meeting and without—which Association activity affords—would be the practical way to iron out difficulties such as those presented in this article.

Quality Control

(Continued from page 177)

small jobs—a combined loaded capacity of 14,000 units. According to the record 23,000 units of the total delivered per day are hauled an average of 70 miles. Flat bed trucks haul 28,000 units of the daily production. Two extra flat bed trailers are available in the yard and spotted by its tractor for loading when the rest of the trucks are on the road. The plant is producing 400 lineal ft. of sills and lintels and 25 sectional burial vaults per day as auxiliary operations. Two Clippers and one Stone saw are employed to score ashlar units and, to

Cornerstone of Success



GRAVELEY

BETTER-BUILT

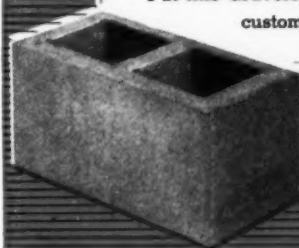
MACHINES

Reach NEW HEIGHTS in PRODUCTION and QUALITY

Operators old and new are stepping up production and improving the quality of their blocks and increasing profits thru Graveley "Better Built" Concrete Block Machines.

Put a Graveley to work for you. One machine makes eight sizes of blocks, a truly versatile, practical money-making machine. There are two models, a 2-cell and a 3-cell, both two unit jobs. Two Graveley machines operating from a single mixer and conveyor will produce well over 3,200 blocks a day.

Put this Graveley job to work for you. Provide for every possible customer demand in both style and size range of block.



BOB GRAVELEY INDUSTRIES, Inc.
ORLANDO, FLORIDA

GRAVELEY BETTER-BUILT MACHINERY

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PRODUCTS'

family of

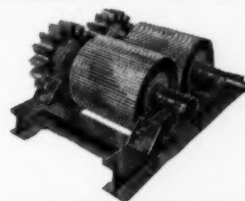
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BONDED CINDER CRUSHER

The Better Buy!

Complete, efficient crushing in ONE operation for block making. Hundreds of satisfied users in U.S. and Canada report low operating and maintenance costs. Free descriptive folder. Write, wire or phone—Garfield 5712 or University 2832 evenings.



7 DAY DELIVERY

10 to 20
ton per hour
capacity

25 to 50
ton per hour
capacity

\$345.

\$795.

BONDED SCALE COMPANY

1101 BELLVIEW AVE.
COLUMBUS 7, OHIO

MANUFACTURERS OF SCALES, CRUSHERS, CONVEYORS, VIBRATING SCREENS

CONCRETE BLOCK PLANT IN ONE PACKAGE

Insures Low Cost - High Production-Quality Blocks



Shown above is a typical plant set-up in actual operation. This plant produces 2,000 Standard (8x8x16) Blocks or 4,000 Partition (4x8x16) Blocks per 8-hour shift with a six man crew (shown in background). Equipment includes 2 Kirkham Vibrator Block Machines, one 2-sack plant mixer, one double material hopper, one material elevator, angle iron racks and rubber tired lift truck.

We can supply you with a plant, of modern design, single or double, consisting of the following:

SINGLE
Model #12 Plant Mixer
(1 sack mixer)
Single Hopper
(20 cu. ft.)

DOUBLE
Model No. 24 Plant Mixer
(2 sack mixer)
Double Hopper
(40 cu. ft.)

Material Elevator
(Angle Type-8" Belting)
1 or 2 Kirkham Vibrator
Block Machines
(Plain Pallet)
Angle Iron Racks
(48 Block Capacity)
Rubber Tired Lift Truck
(2500# Capacity)

Write, Phone, or wire for prices, delivery dates, sketches of proposed plant layouts for single or double installations.

FLEMING MANUFACTURING CO., Inc.

4985 FYLER AVE., ST. LOUIS 9, MO. TELEPHONE FLANDERS 7800

special order, integrally-colored units. Sales are 70 per cent through dealers and have been extended into Massachusetts, New York State and Rhode Island. A Remington-Rand system of scheduling deliveries, according to order priority has been installed with great success when there is a large backlog of orders.

Laboratory

A laboratory, completely equipped for quality control and research, has just gone into operation in charge of a skilled technician and assistant. Among the principal equipment are a Lindberg (Fisher Scientific Co.) electric muffle furnace for the testing of aggregates; two drying ovens for use in the determination of fineness modulus of aggregates and for checking absorption; a Whittemore strain gauge to test expansion and contraction of block through the curing cycles or under freezing conditions; the P.C.A. recommended stain tank for cinder quality control; a Tyler Ro-Tap for sieve analysis of aggregate; an Ace cabinet for freezing and thawing tests; and a 300,000 lb. Southwark-Emery compression machine. Reports certifying average compressive strengths of units will be made available to contractors and engineers.

A short section of kiln of exact width and height of the plant kilns has been built of cinder block inside the laboratory, in order to perform experiments to determine exactly how best to cure. The kiln is equipped with Leeds-Northrup control for predetermined temperatures inside, and Brown Instrument control for relative humidity.

Organization

The organizational setup to correlate and integrate all phases of the business is well integrated. There is an advisory board, and the organization chart comprises Administration, Sales, Production, and Materials Handling, both for aggregates and the finished product. Each phase is integrated as shown on the accompanying diagram.

Office Meetings

A magnificent new office building constructed completely with "Plastacrete Bloc" is a spectacular demon-

(Continued on page 192)

CONCRETE BURIAL VAULTS

AMERICA'S FINEST MOLDS AND LOWERING DEVICES

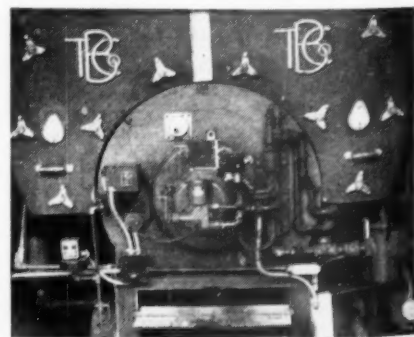


TERRITORY FRANCHISES

BERG VAULT CO.

EQUIPMENT DIVISION
1620 LUCAS HUNT RD. ST. LOUIS 20, MO.

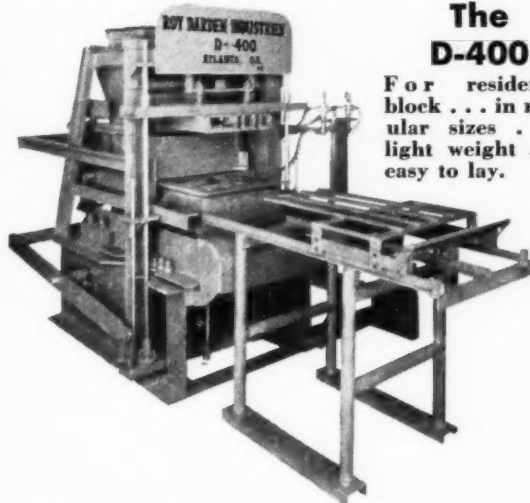
Join
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family of
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Close-up of one of the new 100-hp., oil-fired boilers for curing

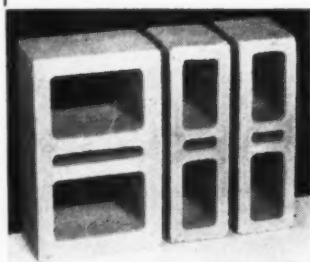
DARDEN ADDITIONS!!

Announcing!!



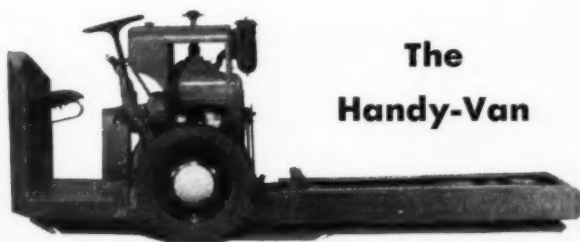
The D-400

For residential block . . . in modular sizes . . . light weight . . . easy to lay.



400 5x8x12 in. block or equivalent per hour. Finger-tip air valve controls. No heavy physical exertion.

Two 5x8x12's, or one 5x8x12 and two 5x4x12's per cycle with one mold box.



The Handy-Van

Motorized lift truck. Capacity 6,000 lbs. Built in Milwaukee. Equipped with Wisconsin air-cooled motor. Hydraulic lift. Sold exclusively by Roy Darden Industries, Inc.

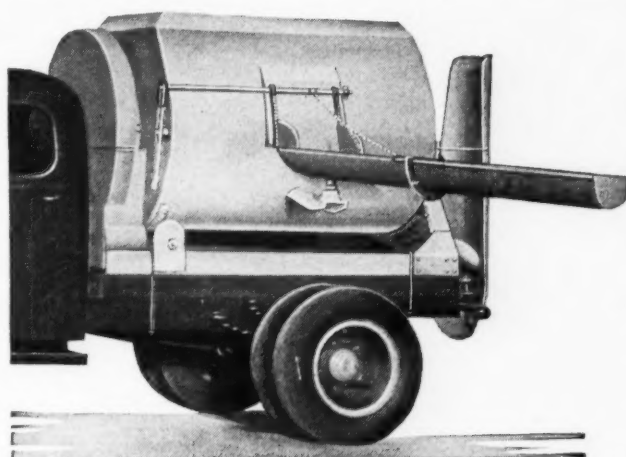
Built to take it through all kinds of weather . . . over paved or unpaved yards . . . long trouble-free operation.

ROY DARDEN INDUSTRIES, Inc.

313 Bona Allen Bldg.
Atlanta, Ga.

1125 Stonewell St.
Dallas, Texas

ANNOUNCING the NEW HIGH DISCHARGE *Transport* TRUCK MIXER



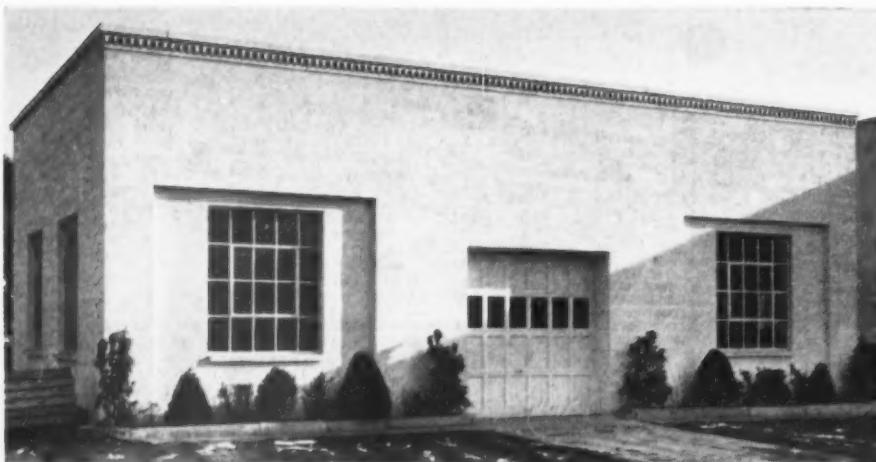
- ★ FAST OPEN TOP CHARGING
- ★ FULL VIEW INSPECTION
- ★ SUPERIOR MIXING PRINCIPLE
- ★ INSURES QUALITY CONCRETE
- ★ ALL STEEL CONSTRUCTION
- ★ LOW MAINTENANCE
- ★ ALL BEARINGS FULLY PROTECTED
- ★ GOOD DELIVERY

PHONE, WRITE, OR WIRE FOR DETAILS . . .

CONCRETE TRANSPORT MIXER

COMPANY, INC.

650 ROSEDALE AVE.
ST. LOUIS 12, MISSOURI



New control and research laboratory. Doorway accommodates complete rack-loads for curing research inside laboratory

(Continued from page 190)

stration of the utility and beauty of concrete masonry. Complete with private offices, kitchen and other conveniences, it has a large meeting and study room accessible to architects, engineers and builders and where the company conducts regular meetings.

Every Monday night a foremen's meeting is conducted, according to the National Foremen's Institute proceedings; consisting of a one hour training course followed by one-half hour of discussion. A luncheon meeting for department heads is conducted every Friday in order to correlate all op-

erations and to give each an opportunity to bring up problems for open discussion and solution as they present themselves.

Future Plans

Aggregate supply has been a pressing problem and the company recently engaged the services of an outside organization to study sources of cinder supply. Some 300 sources were examined.

The same concern, Westcott and Mapes, Inc., New Haven, an architectural and engineering firm, was engaged to complete a market potential

study which is the basis for expansion plans now in development. The study was based largely on reputable estimates of future dollar volume of construction, considering past trends and the average percentage of building permit dollar that has been spent for concrete masonry units. In this marketing area, concrete masonry has increased, within a few years, from 40 block to 100 per \$1000 of building permits. According to the study, a potential increase in volume of 50 per cent is indicated.

The company has purchased a new site in Hamden and is laying plans for a future straight-line flow production plant that will have four large capacity block machines, research laboratory, administration building and a new aggregate processing plant which is now under construction. The present plant would be retained for supplemental production and the manufacture of special products.

Curing

(Continued from page 173)

furnace is operated for four hours to dry cinder units. This period is increased to five or six hours in drying denser units. Relative humidity drops gradually as the kiln is exhausted (vented) during the drying period. Under certain conditions there have been times when the 200 deg. F. temperature could be held by the use of heated air alone.

At the end of the approximate 17-hr. curing and drying cycle, compressive strengths in excess of the 1000 p.s.i. for grade A units are obtained, and a 6 hr. drying period yields a unit with 38-39 per cent contained moisture. Moisture content has been driven much lower with longer drying periods and measures approximately 60 per cent when dried for only four hours. It has been observed that units as taken direct from the kilns are dried out much more than units that had been stored for weeks in the yard when cured by discarded methods. Cement used is air-entraining cement, preferred for its workability.

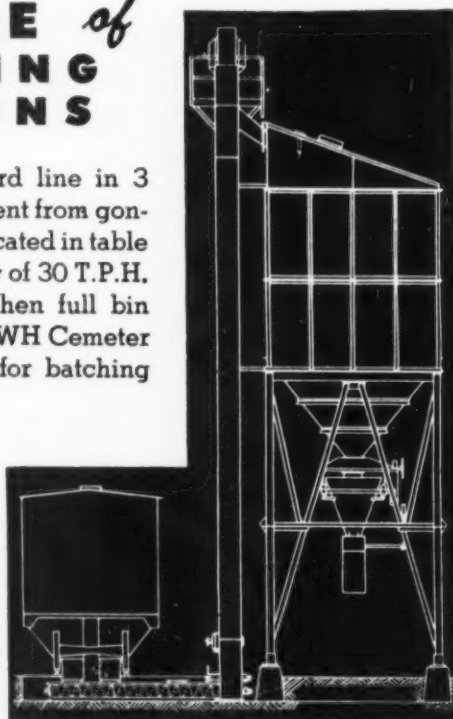
Further experimentation is going forward to the goal of still higher curing temperatures for drying; in fact to above 212 deg. F., the theory being to boil out the water from the units. A new design of furnace will be employed—an actual direct-firing unit—to develop the tremendous heat required to change water to a gas. Automatic quick-opening vents for exhaustion will be required, of course.

Glenn C. Barnes, who is president of Barnes & Cone, Inc., also owns the Albany Block and Supply Co., Inc., Albany, N. Y., and Auburn Cement Products Co., Inc., Auburn, N. Y. These companies each operate a plant with one Besser Vibrapac and each have a daily production of 6000 cinder units per day. Curing methods at both will conform, sometime in the future, with methods adopted as standard at the Syracuse plant.

A NEW LINE of CAR LOADING CEMENT BINS

WE have developed this standard line in 3 popular sizes for hauling bulk cement from gondola cars to bin. Capacities are indicated in table below. Bucket elevator has capacity of 30 T.P.H. High level bin signal indicates when full bin capacity has been reached. Type DWH Cemeter provides 8 to 20 cu. ft. capacity for batching service. Write for complete data.

| BIN | CAPACITY | |
|-----|----------|------------|
| | CU. YDS. | BBLS |
| 1 | 29 | 172 to 194 |
| 2 | 45 | 270 to 304 |
| 3 | 73 | 437 to 492 |



ERIE AGGREMETER PLANTS

Erie Steel Construction Co., 771 Gelst Rd., Erie, Pa.

BUCKETS • AGGREMETERS • PORTABLE CONCRETE PLANTS

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AD MIXTURES. Aggregate

Calcium Chloride Association, Penobscot Bldg., Detroit, Mich.
 Johns-Manville, 22 E. 40th St., New York 16, N. Y.
 Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
 Reardon Industries, 2837 Stanton Ave., Cincinnati 6, Ohio.
 Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
 L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
 Tamms Silica Co., 228 No. LaSalle St., Chicago 1, Ill.
 Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago 3, Ill.

AERATION UNIT (For Blending Agitation in Bins)

Fuller Co., Fuller Bldg., Catasauqua, Penn.24, 25

AERIAL TRAMWAYS

American Chain & Cable Co., Inc., Bridgeport, Conn.3rd Cov.
 American Steel and Wire Co., Rockefeller Bldg., Cleveland 13, Ohio
 The Cleveland Crane & Engineering Co., 1109 East 263rd St., Wickliffe, Ohio
 Columbia Steel Co., Russ Bldg., San Francisco, Calif. (U. S. Steel Corp. Sub.)
 Hazard Wire Rope Co., 81 E. Ross St., Wilkes-Barre, Penna.3rd Cov.
 Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Robins Conveyors, Inc. (Div. of Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.56
 John A. Roebling's Sons Co., 640 S. Broad St., Trenton 2, N. J.17
 The Stearns-Roger Mfg. Co., 1718 - 1722 California St., Denver 2, Colo.

AFTERCOOLERS. Air

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
 American Locomotive Co., 30 Church St., New York 8, N. Y.
 Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.44
 Gardner-Denver Co., Gardner & First Ave., Quincy, Ill.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 The Macleod Co., 2232 - 40 Bogen St., Cincinnati, Ohio
 D. J. Murray Mfg. Co., Wausau, Wis.
 Pennsylvania Pump & Compressor Co., Easton, Penn.
 H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
 Ross Heater & Mfg. Co., Inc., 1407 West Ave., Buffalo 13, N. Y.
 F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y.68, 71
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Young Radiator Co., 709 S. Marquette St., Racine, Wis.

AGGREGATES, for concrete, lightweight slag, Haydite, etc.

The Carborundum Co., P.O. Box 337, Niagara Falls, N. Y.
 Carter-Waters Corp., 2440 Pennway, Kansas City 8, Mo.
 Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.
 Hydraulic-Press Brick Co., St. Louis, Mo.

Section 1 1947

MACHINERY and EQUIPMENT

Hydraulic-Press Brick Co., South Park, Ohio
 McNear Co., San Rafael, Calif.
 The Superock Co., 1202 Empire Bldg., Birmingham 3, Ala.
 Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago 3, Ill.
 Washington Haydite and Concrete Products Co., Bothell, Wash.
 Waylite Co., 105 W. Madison St., Chicago, Ill.
 Western Brick Corp., Danville, Ill.

AGITATORS (See also Vibrators, etc.)

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 International Engineering 1145 Bolander Ave., Dayton 8, Ohio
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio63
 New Haven Vibrator Co., 131 Chestnut St., New Haven 7, Conn.160
 F. L. Smith & Co., 11 W. 42nd St., New York 17, N. Y.68, 71
 Stow Mfg. Co., 443 State St., Binghamton, N. Y.
 Sutton, Steele & Steele, Inc., 1031 S. Haskell St., Dallas 10, Texas
 Syntro Co., 450 Lexington Ave., Homer City, Penn.150
 The W. S. Tyler Co., 3615 Superior Ave., Cleveland 14, Ohio287

AGITATORS, Slurry (See Slurry Agitators)

AIR COMPRESSORS, Portable

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
 American Brakeshoe Co., Kellogg Div., 97 Humboldt St., Rochester 9, N. Y.36, 45
 Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.44
 The Cooper-Bessemer Corp., Mt. Vernon, Ohio
 Curtis Pneumatic Machinery Div. of Curtis Mfg. Co., 1905 Klienlen Ave., St. Louis 20, Mo.
 Davey Compressor Co., Maple & Walnut Sts., Kent, Ohio
 The DeVilbiss Co., 300 Phillips Ave., Toledo, Ohio
 Gardner-Denver Co., Quincy, Ill.
 Hardinge Co., Inc., 240 Arch St., York, Penn.147
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio37
 Kadco Corp., 36-40 Eleventh Street, Long Island City, N. Y. (Subsidiary of Complete Machinery & Equipment Co.)
 Le Rol Co., 1706 S. 68th St., Milwaukee 14, Wis.
 Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
 Novo Engine Co., 702 Porter St., Lansing, Mich.
 O. K. Clutch & Machinery Co., 619 Florence St., Columbia, Penn.

Quincy Compressor Co., 217 Maine, Quincy, Ill.
 Schramm, Inc., Virginia Ave., West Chester, Penn.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Western Machinery Co., 760 Folsom St., San Francisco, Calif.
 Worthington Pump & Machinery Corp., Harrison, N. J.

AIR COMPRESSORS, Stationary

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
 American Brake Shoe Co., Kellogg Div., 97 Humboldt St., Rochester 9, N. Y.36, 45
 Bolinders Co., Inc., 33 Rector, New York 6, N. Y.
 Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.44
 The Conner-Bessemer Corp., Mt. Vernon, Ohio
 Curtis Pneumatic Machinery Div. of Curtis Mfg. Co., 1905 Klienlen Ave., St. Louis 20, Mo.
 Davey Compressor Co., Maple & Walnut Sts., Kent, Ohio
 DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
 The DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio
 Fuller Co., Fuller Bldg., Catasauqua, Penn.24, 25
 Gardner-Denver Co., Quincy, Ill.
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio37
 E. B. Kelley Co., Farmingdale, N. J.
 Lynch Mfg. Corp., 3600 Summit St., Toledo 1, Ohio
 Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
 Nordberg Mfg. Co., 3073 S. Chase Ave., Milwaukee, Wis.22
 Novo Engine Co., 702 Porter St., Lansing, Mich.
 O. K. Clutch & Machinery Co., 619 Florence St., Columbia, Penn.
 Pennsylvania Pump & Compressor Co., Easton, Penn.
 Quincy Compressor Co., 217 Maine St., Quincy, Ill.
 Schramm, Inc., Virginia Ave., West Chester, Penn.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 The Trane Co., La Crosse, Wis.
 Worthington Pump & Machinery Corp., Harrison, N. J.

AIR CONDITIONING EQUIPMENT, Laboratory

Air-Maze Corp., 5200 Harvard Ave., Cleveland 5, Ohio
 American Blower Corp., Box 58, Roosevelt Park Annex, Detroit 32, Mich.
 Clarage Fan Co., North & Porter Sts., Kalamazoo 16, Mich.

Curtis Pneumatic Machinery Div. of Curtis Mfg. Co., 1905 Klienlen Ave., St. Louis 20, Mo.

Parsons Eng. Corp., 2546 E. 79th St., Cleveland 4, Ohio
 Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.

The Trane Co., 2nd & Cameron Ave., La Crosse, Wis.
 Waukesha Motor Co., P. O. Box 379, Waukesha, Wis.
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

Wickwire Spencer Steel Co., 530 Fifth Ave., New York 18, N. Y.20
 Worthington Pump & Machinery Corp., Harrison, N. J.
 Young Radiator Co., 709 S. Marquette St., Racine, Wis.

AIR CONVEYORS

The Allen-Sherman-Hoff Co., 1435 Locust St., Philadelphia 2, Penn.78
 American Blower Corp., Box 58, Roosevelt Park Annex, Detroit, Mich.
 Babcock & Wilcox Co., 85 Liberty Street, New York 6, N. Y.74
 Bayley Blower Co., 1817 S. 66th St., Milwaukee 14, Wis.
 Beaumont Birch Co., 1505 Race St., Philadelphia 2, Penn.
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Cal.
 The Ducou Co., 259 Norman Ave., Brooklyn 22, N. Y.
 Fuller Co., Fuller Bldg., Catasauqua, Penn.24, 25
 Hardinge Co., Inc., 240 Arch St., York, Penn.147
 Parsons Eng. Corp., 2546 E. 79th St., Cleveland 4, Ohio
 Robinson Air Activated Conveyor Systems, Div. of Morse Boulder Destructor Co., 205 E. 42nd St., New York 17, N. Y.
 F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y.68, 71
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

AIR ENTRAINING AGENTS

Dewey and Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass.
 Hercules Powder Co., 946 King St., Wilmington 99, Del.55
 L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
 Procter & Gamble, 1000 Gwynne Bldg., Cincinnati, Ohio

AIR FILTERS

Air Maze Corp., 5200 Harvard Ave., Cleveland, Ohio
 American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.52
 American Brake Shoe Co., Kellogg Div., 97 Humboldt St., Rochester 9, N. Y.36, 45
 The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland 5, Ohio
 Coppus Engineering Corp., 344 Park Ave., Worcester 2, Mass.

DIRECTORY

Dollinger Corp., (Formerly Staynew Filter Corp.) 11 Centre Park, Rochester 4, N. Y.
 Donaldson Co., Inc., 666 Pelham Blvd., St. Paul 4, Minn.
 Dracco Corp., 4043 E. 116th St., Cleveland, Ohio
 The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 The Macleod Co., 2232-40 Bogen St., Cincinnati, Ohio
 Alexander Milburn Co., 1425 W. Baltimore St., Baltimore, Md.
 The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio
 Parsons Engineering Corp., 2546 E. 79th St., Cleveland 4, Ohio
 Sels Corporation of America, Erie Ave. & D St., Philadelphia 34, Penn.
 Simplicity System Co., Riverside Dr., Chattanooga, Tenn.
 Spencer Turbine Co., Hartford, Conn.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Sutton, Steele & Steele, Inc., 1031 So. Haskell St., Dallas 10, Texas

AIR HEATERS

American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.
 The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
 Bayley Blower Co., 1817 S. 66th St., Milwaukee 14, Wis.
 Buffalo Forge Co., Box 985, Buffalo 5, N. Y.
 Claring Fan Co., North & Porter Sts., Kalamazoo 16, Mich.
 Diamond Iron Works, Inc., and the Mahr Mfg. Co., Division, 1800 N. 2nd St., Minneapolis 11, Minn.
 Dravo Corp., Neville Island, Pittsburgh, Penn.
 General Electric Co., 1 River Road, Schenectady 5, N. Y.
 The Heil Co., 3000 W. Montana, Milwaukee, Wis.
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York City 16, N. Y.
 D. J. Murray Mfg. Co., Wausau, Wis.
 Prat-Daniel Corp., 84 S. Water St., E. Portchester, Conn.
 Ross Heater & Mfg. Co., Inc., 1407 West Ave., Buffalo 13, N. Y.
 The Trane Company, 2nd & Cameron Ave., La Crosse, Wis.
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.
 Young Radiator Co., 709 S. Marquette St., Racine, Wis.

AIR LINE LUBRICATORS

American Brake Shoe Co., Kellogg Div., 97 Humboldt St., Rochester 9, N. Y.
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y.
 Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland 5, Ohio
 Gardner-Denver Co., Quincy, Ill.
 Hills-McCanna Co., 3025 N. Western Ave., Chicago 18, Ill.
 Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Knox Mfg. Co., 811 Cherry St., Philadelphia 7, Penn.
 Lincoln Engineering Co., 5701 Natural Bridge Ave., St. Louis 20, Mo.
 New Haven Vibrator Co., 131 Chestnut St., New Haven 7, Conn.

Rucker-Vaughn Co., 4228 Hollis St., Oakland 8, Cal.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

AIR RECEIVERS, Tanks, Steel

Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.
 Curtis Mfg. Co., 1988 Kienlen Ave., St. Louis 20, Mo.
 J. P. Devine Mfg. Co., Inc., 909 Shawnee, Mt. Vernon, Ill.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
 Maddox Foundry & Machine Works, Archer, Fla.
 Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
 National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
 Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.
 Pacific Car & Foundry Co., 4th and Factory St., Renton, Wash.
 Parsons Engineering Corp., 2546 E. 79th St., Cleveland 4, Ohio
 Pennsylvania Pump & Compressor Co., Easton, Penn.
 Pittsburgh-Des Moines Steel Co., 3438 Neville Island, Pittsburgh, Penn.
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Cal.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Wisconsin Foundry & Machine Co., 623 East Main, Madison 1, Wis.

AIR SEPARATORS

American Air Filter Co., Inc., 107 Central Ave., Louisville 8, Ky.
 Bradley Pulverizer Co., 123 S. Third St., Allentown, Penn.
 The DeVilbiss Co., 300 Phillips Ave., Toledo, Ohio
 Hardinge Co., Inc., 240 Arch St., York, Penn.
 Kennedy-Van Saun Mfg. & Engineering Co., 2 Park Ave. Bldg., New York, N. Y.
 Kent Mill Co., 10 Rapelye St., Brooklyn 31, New York, N. Y.
 The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
 Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
 Raymond Pulverizer Div., Combustion Engineering Co., Inc., 1319 N. Branch St., Chicago, Ill.
 Separations Engineering Corporation, 110 E. 42nd St., New York 17, N. Y.
 F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.
 Sturtevant Mill Co., 41 Harrison Sq., Boston 22, Mass.
 Sutton, Steele & Steele, Inc., 1031 S. Haskell, Dallas 10, Texas
 Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y.
 Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.

AIR TRANSPORT SYSTEMS (See Conveyors, Pneumatic)

ALLOYS (Abrasion Resisting)

Allied Steel Products, Inc., 1721 N.B.C. Bldg., Cleveland 14, Ohio

American Brake Shoe Co., Electro-Alloys Div., Taylor St. & Abbey Rd., Elyria, Ohio
 American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
 The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
 Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn.
 The Bonnot Co., Mulberry St., Canton 2, Ohio
 Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
 Coast Metals, Inc., 1234 Camden Ave., S. W. Canton 6, Ohio
 The Elmco Corp., P. O. Box 300, Salt Lake, Utah
 Electric Steel Foundry Co., 2141 N. W. 25th Ave., Portland 10, Ore.
 International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.
 Jones & Laughlin Steel Corp., 311 Ross St., Pittsburgh 30, Penn.
 Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Cal.
 Lukens Steel Co., Coatesville, Penn.
 Meckum Engineering Inc., 53 West Jackson Blvd., Chicago 4, Ill.
 Mir-O-Col Alloy Co., 2416-30 E. 53rd St., Los Angeles 11, Cal.
 Pacific Car & Foundry Co., 4th & Factory St., Renton, Wash.
 Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
 Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
 Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Box 8000-A Chicago 80, Ill.
 F. L. Smidth & Co., 60 E. 42nd St., New York 17, N. Y.
 Stooddy Co., 129 W. Slauson St., Whittier, Calif.
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J.
 Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y.
 Vulcan Iron Works, 730 S. Main St., Wilkes-Barre, Penn.
 Wall - Colmonoy Corp., 714 Fisher Bldg., Detroit 2, Mich.
 The Webb Corp., 402 E. Broadway, Webb City, Mo.

ALLOYS (Heat Resisting)

American Brake Shoe Co., Electro-Alloys Div., Taylor St. & Abbey Rd., Elyria, Ohio
 The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
 American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio
 The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
 Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn.
 Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
 Coast Metals, Inc., 1234 Camden Ave., S. W. Canton 6, Ohio
 Electric Steel Foundry Co., 2141 N.W. 25th Ave., Portland 10, Oregon
 International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.
 Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Cal.
 Lukens Steel Co., Coatesville, Penn.
 Mir-O-Col Alloy Co., 2416-30 E. 53rd St., Los Angeles 11, Cal.
 Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.

Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
 Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Box 8000-A Chicago 80, Ill.
 F. L. Smidth & Co., 60 E. 42nd St., New York 17, N. Y.
 Stooddy Co., 129 W. Slauson St., Whittier, Calif.
 Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y.
 Wall - Colmonoy Corp., 714 Fisher Bldg., Detroit 2, Mich.

ALLOYS (Manganese)

The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
 American Manganese Steel, 377 E. 14th St., Chicago Heights, Ill.
 Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn.
 Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
 Electric Steel Foundry Co., 2141 N.W. 25th Ave., Portland 10, Oregon
 The Frog Switch & Manufacturing Co., E. High St., Carlisle, Penn.
 Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Cal.
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Lukens Steel Co., Coatesville, Penn.
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Pettibone-Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
 Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
 Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
 Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Box 8000-A Chicago 80, Ill.
 F. L. Smidth & Co., 60 E. 42nd St., New York 17, N. Y.
 Stooddy Co., 129 W. Slauson St., Whittier, Calif.
 Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

ALTERNATORS, Electric

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
 Burke Electric Co., 12th & Cranberry, Erie, Penn.
 Century Electric Co., 1806 Pine, St. Louis 3, Mo.
 Crocker-Wheeler Electric Mfg. Div. of Joshua Hendy Iron Wks., Ampere, N. J.
 Electric Machinery Mfg. Co., 1331 N.E. Tyler St., Minneapolis 13, Minn.
 Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 General Electric Co., 1 River Road, Schenectady 5, N. Y.
 The Ideal Electric & Mfg. Co., East First & Oak, Mansfield, Ohio
 Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

AMMETERS (See Meters, Electric)

ANTI-FRICTION BEARINGS (See Bearings)

DIRECTORY

APRON FEEDERS (See Feeders, Apron)

ARC WELDING APPARATUS (See also Welding Equipment, Supplies, etc.)

Air Reduction Sales Co., 80 E. 42nd St., New York 17, N. Y.
 Allan Mfg. & Welding Co., 726 Washington St., Buffalo 3, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 General Electric Co., 1 River Road Schenectady 5, N. Y.
 Harnischfeger Corp., 4400 W. National, Milwaukee 14, Wis. 145, 158
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio
 Stoddy Co., 1134 W. Slauson St., Whittier, Calif. 300
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

ASPHALT MIXING PLANTS

Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 The F. D. Cummer & Son Co., E. 17th & Euclid Ave., Cleveland 15, Ohio
 Hetherington & Berner, Inc., 701 Kentucky Ave., Indianapolis 7, Ind.
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa
 Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
 Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
 The McCarter Iron Works, Inc., Mill & Washington Sts., Norristown, Penn.
 Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
 Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
 Universal Engineering Corp., 625 C Ave., W., Cedar Rapids, Iowa
 Warren Brothers Roads Co., 38 Memorial Drive, Cambridge 42, Mass.

AUTOCLAVES, Laboratory

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Blaw-Knox Co., Farmers Bank Building, Pittsburgh 22, Penn. 160
 Electric Steel Fdry., 2141 NW 25th Ave., Portland, Ore.
 Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Penn.
 International Engineering Inc., Belander Ave., Dayton 1, Ohio
 Palo Myers, Inc., 81 Reade St., New York 17, N. Y.
 H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.

AXLES

American Locomotive Co., 30 Church St., New York 8, N. Y.
 The Atlas Car & Mfg. Co., 1140 Ivanhoe Rd., Cleveland, Ohio
 Bethlehem Steel Co., 701 East Third St., Bethlehem, Penn. 65

The C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver 1, Colo.
 The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
 Electric Wheel Co., 28th & Cedar Sts., Quincy, Ill.
 Four Wheel Drive Auto Co., Clintonville, Wis.
 Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
 H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
 W. A. Riddell Corp., Bucyrus, Ohio
 Sanford-Day Iron Works, Inc., Dale Ave., Knoxville, Tenn.
 Thornton Tandem Co., 8701 Grinnell St., Detroit 13, Mich.
 Truck Engineering Corp., 1285 W. 70th St., Cleveland, Ohio
 Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo 14, N. Y.
 The Truckstell Co., 1672 Union Commerce Bldg., Cleveland 1, Ohio.

BABBITT METAL

Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Groch Engineering Co., 628 W. 9th St., Los Angeles 15, Calif.
 Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill. 1
 Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.
 Joseph T. Ryerson & Son Inc., 2558 West 16th St., Box 8000-A, Chicago 80, Ill.
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

BACKFILLERS

Allis-Chalmers Tractor Div., 1126 S. 70th St., Milwaukee, Wis. 49, 53
 Anderson Engr. Co., 19-21 Charles St., Cambridge 41, Mass.
 Bay City Shovels, Inc., Bay City, Mich.
 The Browning Crane & Shovel Co., 163rd & Waterloo Rd., Cleveland 10, Ohio
 Buckeye Traction Ditcher Co., Crystal St., Findlay, Ohio
 Bucyrus-Erie Co., P. O. Box 56, South Milwaukee, Wis. 4th Cov.
 Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y. 44
 General Excavator Co., Cheney St., Marion, Ohio 62
 Harnischfeger Corp., 4400 W. National, Milwaukee 14, Wis. 145, 158
 The George Hals Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
 Frank G. Hough Co., E. Sunnyside Ave., Libertyville, Ill.
 La Plant-Choate Mfg. Co., Inc., Cedar Rapids, Iowa 46
 Link-Belt Speeder Corp., 301 W. Pershing Road, Chicago 9, Ill. 1
 Pacific Car & Foundry Co., Factory St., Renton, Wash.

BAG CLEANERS

American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky. 52
 Ideal Commutator Dresser Co., Park & Borden Ave., Sycamore, Ill.
 The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio
 Parsons Engineering Corp., 2546 E. 79th St., Cleveland 4, Ohio

The W. W. Sly Manufacturing Co., 4700 Train Ave., Cleveland 2, Ohio 135
 Sprout, Waldron & Co., Muncy, Penn.

BAGGING MACHINES (See also Packing Machinery)

International Paper Products Div. of International Paper Co., 220 E. 42nd St., New York 17, N. Y. 23
 Richardson Scale Co., Clinton, N. J.
 F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y. 68, 71
 St. Regis Paper Co., 230 Park Ave., New York 17, N. Y. 19

BAGS, Dust Collector

American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.
 Bemis Bro. Bag Co., 408 Pine St., St. Louis 2, Mo. 33
 Dracco Corp., 4043 E. 116th St., Cleveland, Ohio
 Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 Macleod Co., 2232-40 Bogen St., Cincinnati, Ohio
 The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio
 Pangborn Corp., 120 Pangborn Blvd., Hagerstown, Md.
 Parsons Engineering Corp., 2546 E. 79th St., Cleveland 4, Ohio
 The W. W. Sly Manufacturing Co., 4700 Train Ave., Cleveland 2, Ohio 135

BAGS, Paper, Cloth

Bemis Bro. Bag Co., 408 Pine St., St. Louis 2, Mo. 33
 Chase Bag Co., 309 W. Jackson Blvd., Chicago 6, Ill. 48
 Fulton Bag & Cotton Mills, P. O. Box 1726, Atlanta, Ga.
 George & Sherrard Paper Co., 220 E. 42nd St., New York 17, N. Y.
 Hammond Bag & Paper Co., Wellsburg, W. Va.
 International Paper Products Div. of International Paper Co., 220 E. 42nd St., New York 17, N. Y. 23
 The Jaito Co., Jaito, Ohio
 Kraft Bag Corp., 630 Fifth Ave., New York 20, N. Y.
 The Raymond Bag Co., 1937 Jackson Blvd., Middletown, Ohio
 St. Regis Paper Co., Taggart Corp.-Valve Bag Co., 230 Park Ave., New York 17, N. Y. 19
 Universal Paper Bag Co., New Hope, Penn.

BAG TIES, Wire

Bemis Bro. Bag Co., 408 Pine St., St. Louis 2, Mo. 33
 Fulton Bag & Cotton Mills, P. O. Box 1726, Atlanta, Ga.
 St. Regis Paper Co., 230 Park Ave., New York 17, N. Y. 19
 Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham 2, Ala.

BALL BEARINGS

Atlantic Gear Works Inc., 200 Lafayette St., New York 12, N. Y.
 Federal Bearings Co., 200 Fairview Ave., Poughkeepsie, N. Y.
 Link-Belt Co., 519 North Holmes Ave., Indianapolis 6, Ind. 1
 New Departure Div., General Motors Corp., Bristol, Conn.
 Nice Ball Bearing Co., 30th & Hunting Park Ave., Philadelphia 20, Penn.
 Norma-Hoffmann Bearings Corp., Hamilton Ave., Stamford, Conn.

S K F Industries, Inc., Front St., & Erie Ave., Philadelphia 34, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

BALL MILLS

Allen Cone & Mach'y Corp., 120 Broadway, New York 5, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 The Bonnot Co., Mulberry St., Canton 2, Ohio
 Denver Equipment Co., P. O. Box 5268, Denver 17, Colo. 146
 J. P. Devine Mfg. Co., Inc., 909 Shawnee, Mt. Vernon, Ill.
 The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah.
 Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
 The Galigher Co., 48 South Second East St., Salt Lake City 1, Utah 140
 Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 Joshua Hendy Iron Works, Box 37, Sunnyvale, Calif.
 International Engineering Inc., Bolander Ave., Dayton 1, Ohio
 Kennedy-Van Saun Mfg. & Engrg. Corp., 2 Park Ave., New York 16, N. Y. 14, 15
 McGann Mfg. Co., P. O. Box 1187, York, Penn.
 The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo.
 Morse Bros. Machinery Co., P. O. Box 1708, Denver 1, Colo.
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 1, Wis. 22
 Palo Myers, Inc., 81 Reade St., New York 17, N. Y.
 H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
 F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y. 68, 71
 Southwestern Engr. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
 The Stearns-Roger Mfg. Co., 1718-1722 California St., Denver 2, Colo.
 Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
 Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
 Vulcan Iron Works, 730 S. Main St., Wilkes-Barre, Penn.

BALLS AND SLUGS, Grinding

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 American Mining & Research Co., Eagle & Lawrence Rds., Oakmont, Upper Darby, Penn.
 The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 The Bonnot Co., Mulberry Rd. S.E., Canton, Ohio
 Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
 Coates Steel Products Co., Greenville, Ill.
 Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
 Denver Equipment Co., P. O. B. 5268, Denver 17, Colo. 146
 Groch Engineering Co., 628 W. 9th St., Los Angeles 15, Calif.
 Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 Kennedy-Van Saun Mfg. & Engrg. Corp., 2 Park Ave., New York 16, N. Y. 14, 15
 The Mine & Smelter Supply Co., 1422 17th St., Denver, Colo.
 National Malleable & Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio

DIRECTORY

The Patterson Foundry & Machine Co., E. Liverpool, Ohio
 The Pennebacker Co., 4th & Furnace St., Emmaus, Penn.
 H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
 W. A. Riddell Corp., Bucyrus, Ohio
 S K F Industries, Inc., Front St., & Erie Ave., Philadelphia, Penn.
 F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y. 68, 71
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
 Traylor Engineering & Mfg. Co., Allentown, Penn. 7

BARGES, Sand and Gravel, etc.

American Car & Foundry Co., 30 Church St., New York 8, N. Y.
 American Steel Dredge Co., Inc., 2511 Taylor St., Ft. Wayne 6, Ind.
 Atlas Steel Construction Co., 42 Dutches St., Irvington, N. Y. 186
 Bethlehem Steel Co., Bethlehem, Penn. 65
 Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago 4, Ill.
 Dravo Corp., Neville Island, Pittsburgh 25, Penn.
 Maddox Foundry & Machine Works, Archer, Fla.
 Manitowoc Engineering Works, Manitowoc, Wis. 42
 Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio
 Meckum Engineering Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Millville Iron Works, Inc., Sixth St. & Florence Ave., Millville, N. J.
 Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Sedgwick & Stanhope, 15 S. William St., New York 4, N. Y.

BATCHERS, Weighing and Volumetric

Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Bonded Scale Co., 41 Bellview Ave., Columbus 7, O. 189
 Butler Bin Co., Waukesha, Wis.
 Construction Mch. Co., Glenwood & Vinton, Waterloo, Iowa
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Erie Steel Construction Co., Geist Road and NKP Railroad, Erie, Penn. 192
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros. 2416 E. 16th St., Los Angeles 21, Calif.
 Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa
 Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
 Noble Co., 1860 7th St., Oakland 7, Calif.
 Omega Machine Co., Div. of Builders Iron Foundry, 22 Codding St., Providence 1, R. I.
 Richardson Scale Co., Clifton, N. J.

Scientific Concrete Service Corp., 1252 Waverly Pl., Elizabeth 3, N. J.
 Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
 Sprout, Waldron, Muncy, Penn.
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
 Stearns Mfg. Co., Inc., Adrian, Mich.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

BATCHING PLANTS

Anderson Engineering Co., 19-21 Charles St., Cambridge 41, Mass.
 Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16
 Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Butler Bin Co., Waukesha, Wis.
 Chain Belt Co., 1600 Bruce St., Milwaukee, Wis.
 Construction Machinery Co., Glenwood & Vinton, Waterloo, Iowa
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Erie Steel Construction Co., Geist Road, and NKP Railroad, Erie, Penn. 192
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros. 2416 E. 16th St., Los Angeles 21, Calif.
 Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
 Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
 The Neff & Fry Co., Camden, Ohio
 Noble Co., 1860 7th St., Oakland 7, Calif.
 Sackrete Inc., Apple & Vandalla Aves., Cincinnati 23, Ohio
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

BATTERIES

The Electric Storage Battery Co., 19th St. & Allegheny Ave., Philadelphia 32, Penn.
 The Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron 17, Ohio 39
 Ideal Commutator Dresser Co., Park & Borden Aves., Sycamore, Ill.
 National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.
 United States Rubber Co., 1230 6th Ave., New York 20, N. Y.

BATTERY CHARGING EQUIPMENT

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
 Climax Engr. Co., 1810 S. 4th St., Clinton, Ia.
 Easton Car & Construction Co., Box 270, Easton, Penn.
 Electric Storage Battery Co., 19th St. & Allegheny Ave., Philadelphia 32, Penn.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 Morse Bros. Machy. Co., 2900 Broadway, Denver, Colo.
 Sterling Machinery Corp., 405-13 Southwest Blvd., Kansas City 8, Mo.
 Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

BEARING METALS

Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
 Link-Belt Company, 2410 W. 18th St., Chicago 8, Ill. 1
 Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.
 National Bearing Metal Corp., 4930 Manchester, St. Louis, Mo.
 Joseph T. Ryerson & Son Inc., 2558 West 16th St., Box 8000-A, Chicago 80, Ill. 6
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

BEARINGS, Anti-Friction

Auburn Ball Bearing Co., P.O. Box 3030, Rochester 14, N. Y.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 Continental Gin Co., Industrial Division, 4500 5th Ave., So., Birmingham, Ala. 136
 The Conveyor Co., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Link-Belt Co., 519 North Holmes Ave., Indianapolis 6, Ind. 1
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
 The Medart Co., 100 Potomac St., St. Louis 18, Mo.
 Norma-Hoffmann Bearings Corp., Hamilton Ave., Stamford, Conn.
 Rollway Bearing Co., 541 Seymour St., Syracuse 4, N. Y.
 S K F Industries, Inc., Front St. & Erie Ave., Philadelphia 34, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 The Timken Roller Bearing Co., Canton 6, Ohio 4
 Tyson Bearing Corp., Massillon, Ohio
 The S. K. Wellman Co., 1374 E. 51st St., Cleveland 3, Ohio
 T. B. Woods Sons Co., Fifth Ave., Chambersburg, Penn.

BEARINGS, Ball

Auburn Ball Bearing Co., P.O. Box 3030, Rochester 14, N. Y.
 Continental Gin Co., Industrial Div., 4500 5th Ave., So., Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
 Farrel - Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Link-Belt Co., 519 N. Holmes Ave., Indianapolis 6, Ind. 1
 Norma-Hoffmann Bearings Corp., Hamilton Ave., Stamford, Conn.
 Rollway Bearing Co., Inc., 541 Seymour St., Syracuse 4, N. Y. 57
 S K F Industries, Inc., Front St. & Erie Ave., Philadelphia 34, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y. 20

BEARINGS, Roller

Continental Gin Co., Industrial Div., 4500 5th Ave., So., Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
 Farrel - Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Link-Belt Co., 519 N. Holmes Ave., Indianapolis 6, Ind. 1
 The Medart Co., 100 Potomac St., St. Louis 18, Mo.
 Norma-Hoffmann Bearings Corp., Hamilton Ave., Stamford, Conn.
 Roller Bearing Co. of America, Box 480, Trenton 3, N. J.
 Rollway Bearing Co., Inc., 541 Seymour St., Syracuse 4, N. Y. 57
 Joseph T. Ryerson & Sons, Inc., 2558 West 16th St., Box 8000-A, Chicago 80, Ill. 6
 Sanford - Day Iron Works, Inc., Dale Ave., Knoxville, Tenn.
 S K F Industries, Inc., Front St. & Erie Ave., Philadelphia 34, Penn.
 The Timken Roller Bearing Co., Canton 6, Ohio 4
 Tyson Bearing Corp., Massillon, Ohio
 Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y. 20

BEARINGS, Thrust

Atlantic Gear Works Inc., 200 Lafayette St., New York 12, N. Y.
 Auburn Ball Bearing Co., P.O. Box 3030, Rochester 19, N. Y.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Continental Gin Co., Industrial Div., 4500 5th Ave., So., Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Link-Belt Co., 519 N. Holmes Ave., Indianapolis 6, Ind. 1
 Norma-Hoffmann Bearings Corp., Hamilton Ave., Stamford, Conn.
 W. A. Riddell Corp., Bucyrus, Ohio
 Rollway Bearing Co., Inc., 541 Seymour St., Syracuse 4, N. Y. 57
 Joseph T. Ryerson & Sons, Inc., 2558 West 16th St., Box 8000-A, Chicago 80, Ill. 6
 S K F Industries, Inc., Front St. & Erie Ave., Philadelphia 34, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 The Timken Roller Bearing Co., Canton 6, Ohio 4
 The S. K. Wellman Co., 1374 E. 51st St., Cleveland 3, Ohio

BELT ALIGNERS

The C. O. Bartlett & Snow Co., 6194 Harvard Ave., Cleveland, Ohio
 Bodinson Mfg. Co., 3401 Bayshore Blvd., San Francisco 24, Calif.
 Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y.
 Chain Belt Co., 1600 W. Bruce St., Milwaukee, Wis.
 Chicago Belting Co., 113-125 N. Green Street, Chicago 7, Ill.

DIRECTORY

Continental Gin Co., Industrial Division, 4500 5th Ave., So., Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif. 1
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Engineering Wks., 4603 W. Mitchell St., Milwaukee 14, Wis. 1
 The Medart Co., 100 Potomac St., St. Louis 18, Mo. 1
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio 1
 Robins Conveyors Inc., (Div. of Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill. 1
 Webster Mfg. Inc., Tiffin, O. 1

BELT CONVEYORS AND ACCESSORIES (See Conveyors, Belt)

BELT CUTTERS

Armstrong-Bray & Co., 5364 Northwest Highway, Chicago, Ill. 1
 Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y. 1
 Clipper Belt Lacer Co., 974 Front Ave. N.W., Grand Rapids 2, Mich. 1
 Flexible Steel Lacing Co., 4607-31 Lexington St., Chicago 44, Ill. 158

BELT DRESSING

Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y. 1
 Chicago Belting Co., 113-125 N. Green St., Chicago 7, Ill. 1
 Cling-Surface Co., 1032-1048 Niagara St., Buffalo 13, N. Y. 1
 The B. F. Goodrich Co., Akron, Ohio 3
 The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
 E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penn. 1
 Main Belting Co., 1241 Carpenter St., Philadelphia 47, Penn. 1
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan Inc., 61 Willett St., Passaic, N. J. 59
 J. E. Rhoads & Sons, 35 N. Sixth St., Philadelphia 6, Penn. 1
 Rockwood Manufacturing Co., 1801 English Ave., Indianapolis, Ind. 1
 Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J. 1
 Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif. 43
 Standard Oil Co. (Indiana), 910 S. Michigan Ave., Chicago, Ill. 1
 Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y. 1

BELT FASTENERS AND LACING

Armstrong-Bray & Co., 5364 Northwest Highway, Chicago, Ill. 1
 The Bristol Co., Waterbury 91, Conn. 1
 Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y. 1
 Bristol Co., Waterbury 91, Conn. 1
 Chicago Belting Co., 113-125 N. Green St., Chicago 7, Ill. 1
 Clipper Belt Lacer Co., 974 Front Ave. N.W., Grand Rapids 2, Mich. 1
 Crescent Belt Fastener Co., 247 Park Ave., New York 17, N. Y. 1

Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Flexible Steel Lacing Co., 4607-31 Lexington St., Chicago 44, Ill. 158
 Goodman Mfg. Co., 4834 S. Halsted, Chicago 9, Ill. 1
 The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
 E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penn. 1
 Manhattan Rubber Mfg. Div. of Raybestos-Manhattan Inc., 61 Willett St., Passaic, N. J. 59
 J. E. Rhoads & Sons, 35 N. Sixth St., Philadelphia 6, Penn. 1
 W. O. & M. W. Talcott, Inc., 91 Sabin, Providence 1, R. I. 1
 United States Steel Supply Co., 1319 Wabansia Ave., Chicago, Ill. 1
 Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y. 1

BELT PULLEYS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio 1
 Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y. 1
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis. 1
 Chicago Belting Co., 113-125 N. Green St., Chicago 7, Ill. 1
 Continental Gin Co., Industrial Div., 4500 5th Ave., Co., Birmingham, Ala. 136
 The Conveyor Co., 3260 E. Slauson Ave., Los Angeles 11, Calif. 1
 The Dayton Rubber Mfg. Co., P.O. Box 1004, Dayton 1, Ohio 1
 Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1800 N. Second St., Minneapolis 11, Minn. 1
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Ken. 158
 The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa. 67
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 W. A. Jones Fdy. & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill. 1
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 14, 15
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn. 1
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Engineering Wks., 4603 W. Mitchell St., Milwaukee 14, Wis. 1
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Maddox Fdy. & Machine Works, Archer, Fla. 1
 E. F. Marsh Eng. Co., 4030 Chouteau Ave., St. Louis 10, Mo. 1
 The Medart Co., 100 Potomac St., St. Louis 18, Mo. 1
 Pioneer Engineering Works, 1515 Central Ave., Minneapolis 13, Minn. 1
 W. A. Riddell Corp., Bucyrus, Ohio 1
 Robins Conveyors Inc. (Div. of Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Rockwood Mfg. Co., 1801 English Ave., Indianapolis, Ind. 1
 Sprout, Waldron, Muncy, Penn. 1
 Standard Transmission Equip. Co., 3407 Verdugo Rd., Los Angeles 41, Calif. 1

Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill. 1
 Webster Mfg. Inc., Tiffin, Ohio 1
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis. 1
 T. B. Wood's Sons Co., Fifth Ave., Chambersburg, Penn. 1
 Worthington Pump & Mch. Corp., 37 Appleton St., Holyoke, Mass. 1

BELT TRIPPERS (See Conveyor Belt Trippers)

BELTING, Chain

American Manganese Division, 377 E. 14th St., Chicago Heights, Ill. 45
 Chain Belt Co., 1649 W. Bruce St., Milwaukee, Wis. 136
 Continental Gin Co., Industrial Division, 4500 5th Ave. So., Birmingham, Ala. 1
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif. 1
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 14, 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill. 1
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Link-Belt Co., 220 So. Belmont Ave., Indianapolis 6, Ind. 1
 Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis. 1
 Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill. 1
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
 Webster Mfg. Inc., Tiffin, Ohio 1

BELTING (RUBBER), Conveyor, Elevator, Power Transmission

The American Rubber Mfg. Co., 1145 Park Ave., Oakland 8, Calif. 1
 Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y. 1
 Boston Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass. 1
 Chicago Belting Co., 113-125 N. Green St., Chicago 7, Ill. 1
 Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio 1
 The Dayton Rubber Mfg. Co., P.O. Box 1004, Dayton 1, Ohio 1
 The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
 L. H. Gilmer Co., Tacony, Philadelphia 35, Penn. 1
 Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Penn. 1
 The B. F. Goodrich Co., Akron, Ohio 3
 The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
 Hewitt Rubber of Buffalo, Div. of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
 Main Belting Co., 1241 Carpenter St., Philadelphia 47, Penn. 1
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan Inc., 61 Willett St., Passaic, N. J. 59
 Manheim Mfg. & Belting Co., Manheim, Penn. 1
 Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif. 1
 Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn. 12

Republic Rubber Division, Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio 1
 Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J. 1
 Thermoid Co., Whitehead Road, Trenton 6, N. J. 1
 United States Rubber Co., 1230 6th Ave., New York 20, N. Y. 1
 Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y. 1

BELTING, Metal (See Belting, Wire)

BELTING, V-Type

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Browning Mfg. Co., Maysville, Ky. 1
 Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y. 1
 Chicago Belting Co., 113-125 N. Green St., Chicago 7, Ill. 1
 The Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio 1
 Continental Rubber Works, 1502 Liberty St., Erie, Pa. 1
 The Dayton Rubber Mfg. Co., 2342 W. Riverview Ave., Dayton 1, Ohio 1
 Firestone Tire & Rubber Co., 1700 Firestone Parkway, Akron 17, Ohio 39
 The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
 L. H. Gilmer Co., Tacony, Philadelphia 35, Penn. 1
 Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Penn. 1
 The B. F. Goodrich Co., Akron, Ohio 3
 The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan Inc., 61 Willett St., Passaic, N. J. 59
 Manheim Mfg. & Belting Co., Manheim, Penn. 1
 Quaker Rubber Co., Comly & Milnor Sts., Philadelphia, Penn. 12
 Republic Rubber Division, Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio 1
 Rockwood Mfg. Co., 1801 English Ave., Indianapolis, Ind. 1
 Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J. 1
 Thermoid Co., Whitehead Road, Trenton 6, N. J. 1
 United States Rubber Co., 1230 6th Ave., New York 20, N. Y. 1

BELTING, Wire

Audubon Wire Cloth Corp. (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn. 1
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif. 1
 Cyclone Fence Div., American Steel & Wire Co., Waukegan, Ill. 1
 L. H. Gilmer Co., Div. of United States Rubber Co., Tacony, Philadelphia 35, Penn. 1
 Kent Machine Co., Cuyahoga Falls, Ohio 187

BELTS, Fan

Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y. 1
 Chicago Belting Co., 113-125 N. Green St., Chicago 7, Ill. 1
 Continental Rubber Works, 1502 Liberty St., Erie, Penn. 1

DIRECTORY

The Dayton Rubber Mfg. Co., P. O. Box 1004, Dayton 1, Ohio
 The Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron 17, Ohio... 39
 The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
 L. H. Gilmer Co., Tacony, Philadelphia 35, Penn.
 The B. F. Goodrich Company, Akron, Ohio. 3
 The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
 Quaker Rubber Corp., Comly and Milnor Sts., Philadelphia 24, Penn. 12
 Raybestos Div. of Raybestos-Manhattan, Inc., P. O. Box 1021, Bridgeport 2, Conn.
 Thermoid Co., Whitehead Road, Trenton 6, N. J.

BENDING ROLLS for Reinforcing Steel

C. H. & E. Manufacturing Co., 3849 N. Palmer St., Milwaukee 12, Wis.
 Quinn Wire & Iron Works, Boone, Iowa

BIN GATES

The Allen - Sherman - Hoff Co., 1435 Locust St., Philadelphia 2, Penn. 78
 Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 American Manganese Steel Div. of American Brake Shoe Co., 377 E. 14th St., Chicago Heights, Ill. 45
 Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
 Anderson Engineering Co., 225 Bent St., Cambridge 41, Mass.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio
 Beaumont Birch Co., 1512 Race St., Philadelphia, Penn.
 Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65
 Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Butler Bin Co., Box 407, Waukesha, Wis.
 Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
 Chain Belt Co., 1649 W. Bruce St., Milwaukee, Wis.
 Geo. E. Christopher & Son Iron Wks., 1220 Blaine, Wichita 1, Kans.
 Construction Machy. Co., Glenwood & Vinton, Waterloo, Iowa
 Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala. 136
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Denver Equipment Co., P. O. B. 5268, Denver 17, Colo. 146
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
 Erie Steel Construction Co., Gelst Road & NKP Railroad, Erie, Penn. 192
 Farrel - Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Fuller Co., Fuller Bldg., Catasaqua, Penn. 24, 25
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.

General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
 Greenville Mfg. Works, Greenville, Ohio
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 George Halss Mfg. Co., Inc., Park Ave. & 143rd St., New York 51, N. Y.
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 271
 Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.
 R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
 Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York, N. Y. 14, 15
 Fred T. Kern Co., Box 2057, Milwaukee 1, Wis.
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Maddox Foundry & Machine Works, Archer, Fla.
 Madsen Iron Wks., 5631 Bleckett St., Huntington Park, Calif.
 McGann Mfg. Co., P. O. Box 1187, York, Penn.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 The Mine & Smelter Supply Co., P. O. Box 5270 Terminal Station, Denver 17, Colo.
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 Morse Bros. Machinery Co., P. O. Box 1768, Denver 1, Colo.
 D. J. Murray Mfg. Co., Wausau, Wis.
 National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
 The Neff & Fry Co., Camden, Ohio.
 New Holland Mfg. Co., Mountville, Penn. 154
 Omega Machine Co., 9 Codding St., Providence 1, R. I.
 Pacific Car & Fdy. Co., Factory St., Renton, Wash.
 Pioneer Engineering Wks., Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Richardson Scale Co., Clifton, N. J.
 Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N.J.
 Simplicity System Co., Riverside Dr., Chattanooga 6, Tenn.
 Smith Engineering Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 10, 11
 Sprout, Waldron, Muncy, Penn.
 The Standard Metal Mfg. Co., Malinta, Ohio 196
 Standard Steel Corp., 5001 Boyle St., Los Angeles 11, Calif.
 Stearns Mfg. Co., Inc., Adrian, Mich.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
 Traylor Engineering & Manufacturing Co., Tenth & Mill Sts., Allentown, Penn.
 Universal Road Mch. Co., 27 Emerick St., Kingston, N. Y. 287
 Webster Mfg., Inc., Tiffin, Ohio
 Western Mch. Co., 760 Folsom St., San Francisco, Calif.
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

BIN LEVEL INDICATORS

The Babcock & Wilcox Co., 85 Liberty Street, New York 6, N. Y. 74
 The Bin-Dicator Co., 14615 E. Jefferson Ave., Detroit 15, Mich.
 Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 Fuller Co., Fuller Bldg., Catasaqua, Penn. 24, 25
 Hetzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 14, 15
 Mosher Electronic Controls, 130 W. 42nd St., New York 18, N. Y.
 National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
 Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.
 F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71
 Standard Steel Corp., 5001 So. Boyle Ave., Los Angeles 11, Calif.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Syntrol Co., 450 Lexington Ave., Homer City, Penn. 150
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

BINS AND BATCHING EQUIPMENT

Alpha Tank & Sheet Metal Mfg. Co., 5007 S. 38th St., St. Louis, Mo.
 Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
 Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
 Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Bonded Scale Co., 41 Bellview, Columbus 7, Ohio 189
 Butler Bin Co., Box 407, Waukesha, Wis.
 Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
 Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
 Construction Mchry. Co., Glenwood & Vinton St., Waterloo, Iowa
 Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala. 136
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Dravo Corp., Neville Island, Pittsburgh 25, Penn.
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
 Erie Steel Construction Co., Gelst Road & NKP Railroad, Erie, Penn. 192
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
 Greenville Mfg. Works, Greenville, Ohio
 Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 Iowa Mfg. Co., 916-16th St. N.E., Cedar Rapids, Iowa
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.

E. B. Kelly Co., Farmingdale, N. J.
 Kron Co., 1720 Fairfield Ave., Bridgeport 5, Conn.
 Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
 Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 Madsen Iron Wks., 5631 Bleckett St., Huntington Park, Calif.
 The Neff & Fry Co., 150 S. Main St., Camden, Ohio.
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Scientific Concrete Service Corp., 1252 Waverly Place, Elizabeth 3, N. J.
 Symplicity System Co., Riverside Dr., Chattanooga 6, Tenn.
 Standard Steel Corp., 5001 So. Boyle Ave., Los Angeles 11, Calif.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

BINS, STORAGE: CONCRETE (MONOLITHIC)

G. T. Burrell 9 S. Clinton Ave., Chicago, Ill.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Macdonald Engr. Co., 188 W. Randolph St., Chicago 1, Ill.
 The Neff & Fry Co., 150 S. Main St., Camden, Ohio.
 The Nicholson Co., Inc., 10 Rockefeller Plaza, New York 20, N. Y.

BINS, STORAGE: CONCRETE (PRECAST)

The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kan. 160
 Marietta Concrete Corp., Marietta, Ohio
 The Neff & Fry Co., 150 S. Main St., Camden, Ohio.
 The Nicholson Co., Inc., 10 Rockefeller Plaza, New York 20, N. Y.

BINS, STORAGE: STEEL

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 American Car & Foundry Co., 30 Church St., New York 8, N. Y.
 Austin-Western Co., Aurora, Ill.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Bethlehem Steel Co., 701 E. Third St., Bethlehem, Penn. 65
 Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Butler Bin Co., Waukesha, Wis.
 Chicago Bridge & Iron Co., 332 So. Michigan Ave., Chicago 4, Ill.
 Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala. 136
 Denver Equipment Co., P. O. B. 5268, Denver 17, Colo. 148
 Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1728 Second St. N., Minneapolis 11, Minn.
 Dravo Corp., Neville Island, Pittsburgh 25, Penn.
 Eagle Crusher Co., Inc., 900 Harding Way E., Gallon, Ohio
 Erie Steel Construction Co., Gelst Rd. and NKP Railroad, Erie, Penn. 192
 Fabricating & Machinery, Inc., 3226 5th Ave. S., Birmingham 5, Ala. 156
 Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio

DIRECTORY

Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Iowa
 Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio.
 Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
 Lippmann Engineering Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 The McCarter Iron Works, Inc., Mill & Washington Sts., Norristown, Penn.
 Maddox Fdy. & Machine Works, Archer, Fla.
 Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
 McGann Mfg. Co., Inc., Box 1187, York, Penn.
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Pioneer Engr. Wks., Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Rogers Iron Wks., Co., 11th & Pearl, Joplin, Mo.
 Standard Steel Corp., 5001 So. Boyle Ave., Los Angeles 11, Calif.
 Stephens-Adamsen Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Tractor & Equipment Co., 3515 W. 51st St., Chicago 32, Ill.
 Superior Metal Products, Inc., 1819 S. Branson St., Marlon, Ind.
 Traylor Engr. & Mfg. Co., Tenth & Harrison Sts., Allentown, Penn.
 Universal Road Mch. Co., 27 Emerick St., Kingston, N. Y.
 Vulcan Iron Wks., 730 S. Main St., Wilkes-Barre, Penn.
 Webster Mfg. Co., Inc., Tiffin, Ohio.
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

BITS, Drill

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
 American Mining & Research Co., Eagle & Lawrence Rds., Oakmont, Upper Darby, Penn.
 Bucyrus-Erie Co., South Milwaukee, Wis.
 Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.
 The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland 5, Ohio
 Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Kadco Corp., 36-40 Eleventh St., Long Island City, N. Y. (Subsidiary of Complete Machinery & Equipment Co.)
 Keystone Driller Co., Beaver Falls, Penn.
 The Loomis Machine Co., 15 East Market St., Tiffin, Ohio
 The Sanderson-Cyclone Drill Co., 157 S. Main St., Orrville, Ohio
 Schramm, Inc., Virginia Ave., West Chester, Penn.
 The Star Drilling Machine Co., 475 Washington, Akron, 11, Ohio
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Timken Roller Bearing Co., Canton 6, Ohio
 Western Machinery Co., 760 Folsom St., San Francisco, Calif.

BITS, Drill, Detachable

American Mining & Research Co., Eagle & Lawrence Rds., Oakmont, Upper Darby, Penn.
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y.
 Gardner-Denver Co., Gardner & 1st Ave., Quincy, Ill.
 Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Kadco Corp., 36-40 11th St., Long Island City, N. Y. (Subsidiary of Complete Machinery & Equipment Co.)
 Rock Bit Service Co., 350 Depot St., Asheville, N. C.
 The Sanderson-Cyclone Drill Co., Orrville, Ohio
 Schramm, Inc., Virginia Ave., West Chester, Penn.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 The Timken Roller Bearing Co., Canton, Ohio

BITS, Drill, Grinders

Alloys Steel & Metals Co., 1862 E. 55th St., Los Angeles 11, Calif.
 Bucyrus-Erie Co., Box 56, So. Milwaukee, Wis.
 Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 The Mine & Smelter Supply Co., 1422 17th St., Denver, Colo.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

BLACKSMITH TOOLS

Buffalo Forge Co., P. O. Box 985, Buffalo 5, N. Y.
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y.
 The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland 5, Ohio
 Diamond Iron Works, Inc., and The Mahr Mfg. Co., Div., 1800 N. 2nd St., Minneapolis 11, Minn.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 The Sanderson-Cyclone Drill Co., Orrville, Ohio
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

BLASTING CAPS

American Cyanamid & Chemical Corp., Explosives Department, 30 Rockefeller Plaza, New York 20, N. Y.
 Atlas Powder Co., Wilmington 99, Del.
 Austin Powder Co., 758 Rockefeller Bldg., Cleveland, Ohio
 E. I. du Pont de Nemours & Co., Inc., Explosives Dept., N. W. Corner 10th and Market Sts., Wilmington 98, Del.
 The Ensign-Bickford Co., Simsbury, Conn.
 Equitable Powder Mfg. Co., East Alton, Ill.
 Hercules Powder Co., 946 King St., Wilmington 99, Del.
 Illinois Powder Mfg. Co., 730 Pierce Bldg., St. Louis 2, Mo.
 Independent Explosives Co., 455 Leader Bldg., Cleveland 14, Ohio
 National Powder Co., R.F.D., Eldred, Penn.
 Trojan Powder Co., 17 N. 7th St., Allentown, Penn.
 Western Cartridge Co., Div. of Olin Industries, Inc., East Alton, Ill.

BLASTING MACHINES

American Cyanamid & Chemical Corp., Explosives Department, 30 Rockefeller Plaza, New York 20, N. Y.
 Atlas Powder Co., Wilmington 99, Del.
 Austin Powder Co., 758 Rockefeller Bldg., Cleveland, Ohio
 E. I. du Pont de Nemours & Co., Inc., Explosives Dept., N. W. Corner 10th and Market Sts., Wilmington 98, Del.
 Equitable Powder Mfg. Co., East Alton, Ill.
 Hercules Powder Co., 946 King St., Wilmington 99, Del.
 Illinois Powder Mfg. Co., 730 Pierce Bldg., St. Louis 2, Mo.
 Independent Explosives Co., 455 Leader Bldg., Cleveland 14, Ohio
 The MacLeod Co., 2232-40 Bogen St., Cincinnati 22, Ohio
 National Powder Co., R.F.D., Eldred, Penn.
 Trojan Powder Co., 17 N. 7th St., Allentown, Penn.

BLASTING SUPPLIES

American Cyanamid & Chemical Corp., Explosives Department, 30 Rockefeller Plaza, New York 20, N. Y.
 Atlas Powder Co., Wilmington 99, Del.
 Austin Powder Co., 758 Rockefeller Bldg., Cleveland, Ohio
 E. I. du Pont de Nemours & Co., Inc., Explosives Dept., N. W. Corner 10th and Market Sts., Wilmington 98, Del.
 Ensign-Bickford Co., Simsbury, Conn.
 Equitable Powder Mfg. Co., East Alton, Ill.
 Hercules Powder Co., 946 King St., Wilmington 99, Del.
 Illinois Powder Mfg. Co., 730 Pierce Bldg., St. Louis 2, Mo.
 Independent Explosives Co., 455 Leader Bldg., Cleveland 14, Ohio
 National Powder Co., R.F.D., Eldred, Penn.
 Trojan Powder Co., 17 N. 7th St., Allentown, Penn.
 Western Cartridge Co., Div. of Olin Industries, Inc., East Alton, Ill.

BLOCK MACHINES, Concrete Building, Vibrating (Also Tamping, etc.)

Allied Welding & Mfg. Co., 49 Lorna Doone Blvd., Orlando, Fla.
 Anchor Concrete Mch. Co., 1191 Fairview Ave., Columbus 8, Ohio
 J. W. Appley & Son, Inc., 831-9th St. N., St. Petersburg 2, Fla.
 The Atlas Co., 2651 Chouteau Ave., St. Louis 3, Mo.
 Bay City Cast Stone Block Mch. Co., Bay City, Mich.
 Besser Mfg. Co., Alpena, Mich.
 Frank I. Blatt Sales Co., Inc., Rattlesnake, Fla.
 Century Cement Products, 3626 Main St., San Diego 2, Calif.
 Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kan.
 Concrete Pipe Mch. Co., 9th & Division Sts., Sioux City, Iowa
 Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo.
 Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga.
 W. E. Dunn Mfg. Co., Holland, Mich.

Edgar's Block Machine Wks., 240 W. Granada Ave., Ormond, Fla.
 Equipment Engineering Co., St. Charles, Ill.
 Fabricating & Machinery, Inc., 3226 5th Ave., S., Birmingham 5, Ala.
 Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
 Florida Die Casting Foundry, Orlando, Fla.
 J. B. Foote Foundry Co., Fredrickstown, Ohio
 F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla.
 Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
 Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
 E. B. Kelly Co., Farmingdale, N. J.
 Kent Machine Co., Cuyahoga Falls, Ohio
 Leader Welding & Mfg. Co., 2418 6th St., Berkeley 2, Calif.
 C. M. Long Co., Box 374, Auburn, Wash.
 Maddox Foundry & Machine Works, Archer, Fla.
 Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
 Morris Mfg. Co., 900 Brundage, Bakersfield, Calif.
 Mortarless Tile Machine Co., Inc., 2623 Riverside Drive, Los Angeles 28, Calif.
 Multiplex Concrete Mch. Co., Elmore, Ohio
 Pentwater Machinery Co., Pentwater, Mich.
 Stearns Mfg. Co., Inc., Adrian, Mich.

BLOCK MACHINES, Concrete, Catch Basins (See Catch Basin Block Machinery and Molds)

BLOCK MACHINES, Concrete, Flue

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio
 Besser Mfg. Co., Alpena, Mich.
 Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
 Kent Machine Co., Cuyahoga Falls, Ohio
 Multiplex Concrete Mch. Co., Elmore, Ohio
 Stearns Mfg. Co., Inc., Adrian, Mich.

BLOCK MACHINES, Concrete, Man-Hole

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio
 Besser Mfg. Co., Alpena, Mich.
 Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo.
 Kent Machine Co., Cuyahoga Falls, Ohio
 Leader Welding & Mfg. Co., 2418 6th St., Berkeley 2, Calif.
 Multiplex Concrete Mch. Co., Elmore, Ohio
 Stearns Mfg. Co., Inc., Adrian, Mich.

BLOCKS, Pillow, Ball and Roller Bearing

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Bonded Scale Co., 41 Bellview, Columbus 7, Ohio
 Chain Belt Co., 1649 W. Bruce St., Milwaukee, Wis.
 Clyde Iron Works, Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.
 Continental Gin Co., Industrial Division, 4500 5th Ave., So., Birmingham, Ala.

DIRECTORY

The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

Diamond Iron Works, Inc. and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.

Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.

Dodge Manufacturing Corp., 500 S. Union St., Mishawaka, Ind.

The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.

French & Hecht, Inc., Davenport, Iowa

Greenville Mfg. Works, Greenville, Ohio

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio

W. A. Jones Fdy. & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.

Kent Machine Co., Cuyahoga Falls, Ohio

Link-Belt Co., 320 W. Pershing Rd., Chicago 9, Ill.

Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

The Medart Co., 100 Potomac St., St. Louis 18, Mo.

Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio

Norma-Hoffmann Bearings Corp., Hamilton Ave., Stamford, Conn.

W. A. Riddell Corp., Bucyrus, Ohio

Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.

S K F Industries, Inc., Front St. & Erie Ave., Philadelphia 34, Penn.

Sprout, Waldron, Muncy, Penn.

Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Webster Manufacturing, Inc., Tiffin, Ohio

Wisconsin Fdry. & Machine Co., 623 E. Main, Madison 1, Wis.

T. B. Wood's Sons Co., Fifth Ave., Chambersburg, Penn.

BLOCKS, Refractory
(See also Refractories)

The Babcock & Wilcox Co., 85 Liberty Street, New York 6, N. Y.

The Carborundum Co., P.O. Box 337, Niagara Falls, N. Y.

The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kan.

General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

A. P. Green Fire Brick Co., Mexico, Mo.

Harblson-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Penn.

Johns-Manville, 22 E. 40th St., New York 16, N. Y.

Lacide-Christy Clay Products Co., Ambassador Bldg., St. Louis 1, Mo.

Mexico Refractories Co., Cole & Love Sts., Mexico, Mo.

National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.

Permanente Cement Co., Kaiser Bldg., Oakland, Calif.

Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.

Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.

Sales Corporation of America, Erie Ave. & D St., Philadelphia 34, Penn.

Stockton Fire Brick Co., 1267 Russ Building, 235 Montgomery Street, San Francisco, Calif.

Walsh Refractories Corp., 4070 North First St., St. Louis 7, Mo.

BLOCKS, Sheave and Chain

American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.

American Manganese Steel Division of American Brake Shoe Co., 389 E. 14th St., Chicago Heights, Ill.

Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.

Columbus McKinnon Chain Corp., Tonawanda, N. Y.

Dobbie Fdy. & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.

Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.

Electric Steel Fdry Co., 2141 N.W. 25th Ave., Portland 10, Oregon

Ford Chain Block Div., American Chain & Cable Co., 2nd and Diamond Sts., Philadelphia 25, Penn.

Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago, Ill.

Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.

Sauerman Bros., Inc., 522 S. Clinton St., Chicago 7, Ill.

The Upson-Walton Co., Perry Payne Bldg., Cleveland 13, Ohio

Webster Mfg. Inc., Tiffin, Ohio

Wisconsin Fdry. & Machine Co., 623 E. Main, Madison 1, Wis.

Wright Mfg. Div., American Chain & Cable Co., York, Penn.

BLOWERS (See Fans and Blowers)

BLOW TORCHES, Heaters, Thawing Outfits for Frozen Aggregates

Diamond Iron Wks., Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.

Macleod Co., 2232-40 Bogen St., Cincinnati, Ohio

Wisconsin Fdry. & Machine Co., 623 E. Main, Madison 1, Wis.

BOATS, Derrick, Tow

American Steel Dredge Co., Inc., 2511 Taylor St., Ft. Wayne 6, Ind.

Bethlehem Steel Co., Bethlehem, Penn.

Dravo Corp., Neville Island, Pittsburgh 25, Penn.

Manitowoc Engr. Wks., Manitowoc, Wis.

Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio

Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

Millville Iron Wks., Inc., Sixth St. & Florence Ave., Millville, N. J.

Pacific Car & Foundry Co., Factory St., Renton, Wash.

BOATS, Self-Unloading

Dravo Corp., Neville Island, Pittsburgh 25, Penn.

Manitowoc Engr. Wks., Manitowoc, Wis.

Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

Pacific Car & Foundry Co., Factory St., Renton, Wash.

Robins Conveyors Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.

Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

BODIES, Concrete Mixer Truck

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Chain Belt Co., 1619 W. Bruce St., Milwaukee, Wis.

Commercial Concrete Equip. Co., 1 Wolf's Lane, Pelham 65, N. Y.

Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo.

Conserco Co., P. O. Box 4056, Chevy Chase, Md.

Jaeger Machine Co., 550 W. Spring St., Columbus, Ohio

Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio

Ransome Machinery Co., 42 Thomas St., Dunellen, N. J.

T. L. Smith Co., 2835 N. 32nd St., Milwaukee, Wis.

Sterling Motors Corp., 2021 S. 54th St., Milwaukee 1, Wis.

BODIES, Dump, Dump Truck

Anthony Co., Inc., Streator, Ill.

Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill.

Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.

The Burch Corp., Crestline, Ohio

Cook Bros. Equipment Co., 3330 San Fernando Rd., Los Angeles 41, Calif.

Differential Steel Car Co., Findlay, Ohio

Easton Car & Construction Co., Box 270, Easton, Penn.

Four Wheel Drive Auto Co., Clintonville, Wis.

Gallon Allsteel Body Co., 605 S. Market St., Gallon, Ohio

Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.

Pacific Car & Foundry Co., Factory St., Renton, Wash.

The Hell Co., 3000 W. Montana St., Milwaukee 1, Wis.

Hercules Steel Products Co., Gallon, Ohio

Mack Trucks Inc., 350 Fifth Ave., New York 1, N. Y.

Marion Metal Products Co., Cheney Ave., Marion, Ohio

Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio

National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.

Pacific Car & Foundry Co., Factory St., Renton, Wash.

The Perfection Steel Body Co., Gallon, Ohio

Southwest Welding & Mfg. Co., 3201 W. Mission Rd., Alhambra, Calif.

Superior Body Co., Marion, Ind.

Superior Metal Products Co., 1819 S. Branson St., Marion, Ind.

Truck Engr. Corp., 1285 W. 70th St., Cleveland 2, Ohio

Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo 14, N. Y.

BODIES, Trailer

Anthony Co., Inc., Streator, Ill.

Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.

Cook Bros. Equipment Co., 3330 San Fernando Rd., Los Angeles 41, Calif.

Easton Car & Construction Co., Box 270, Easton, Penn.

Fruehauf Trailer Co., 10940 Harper Ave., Detroit 32, Mich.

Gallon Allsteel Body Co., 605 S. Market St., Gallon, Ohio

Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.

The Hell Co., 3000 W. Montana, Milwaukee, Wis.

Hercules Steel Products Co., Gallon, Ohio

R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.

Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y.

Marion Metal Products Co., 413 Monroe, Marion, Ohio

M-R-S Mfg. Co., P.O. Box 1206, 1940 N. Mill Road, Jackson 110, Miss.

Pacific Car & Foundry Co., Factory St., Renton, Wash.

The Perfection Steel Body Co., Gallon, Ohio

A. Streich & Bro. Co., 318 Eighth St., Oshkosh, Wis.

The Trailer Company of America, 31st & Robertson Ave., Cincinnati, Ohio

Truck Engr. Corp., 1285 W. 70th St., Cleveland 2, Ohio

BOILER ACCESSORIES

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, Ohio

Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y.

Turco Products Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

Wirkwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y.

BOILER FEED WATER SYSTEMS

American Locomotive Co., 30 Church St., New York 8, N. Y.

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. (Feedwater Treatment Service)

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio

Cyclotherm Corp., 157 E. 1st St., Oswego, N. Y.

The Dorr Co., 570 Lexington Ave., New York 22, N. Y.

Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.

Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.

Worthington Pump & Machinery Corp., 744 Broad St., Newark 2, N. J.

BOILER INSULATION

The Denver Fire Clay Co., P.O. Box 5510, Denver 17, Colo.

A. P. Green Fire Brick Co., 1018 E. Breckenridge, Mexico, Mo.

General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Johns-Manville, 22 E. 40th St., New York, N. Y.

Mexico Refractories Co., Cole & Love Sts., Mexico, Mo.

Quigley Co., Inc., 527 5th Ave., New York 17, N. Y.

Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.

John A. Roebling's Sons Co., 640 South Broad St., Trenton 2, N. J.

The Ruberoid Co., 500 5th Ave., New York 18, N. Y.

F. L. Smith & Co., 60 E. 42nd St., New York 17, N. Y.

Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago 3, Ill.

BOILER PLATE AND STEEL

Bethlehem Steel Co., 701 E. Third St., Bethlehem, Penn.

Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 19, Penn.

Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.

Jones & Laughlin Steel Corp., 311 Ross St., Pittsburgh 30, Penn.

Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio

Joseph T. Ryerson & Son Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

Superior Metal Products Inc., 1819 S. Branson St., Marion, Ind.

DIRECTORY

Tennessee Coal, Iron & Railroad Co., Brown - Marx Bldg., Birmingham 2, Alabama
United States Steel Supply Co., 1319 Wabansia Ave., Chicago, Ill.

BOILER TUBES

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
Bethlehem Steel Co., Inc., Bethlehem, Penn. 65
Jones & Laughlin Steel Corp., 311 Ross St., Pittsburgh 30, Penn.
National Tube Co., Frick Building, Pittsburgh, Penn.
Pittsburgh Steel Co., Grant Bldg., Pittsburgh 30, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Joseph T. Ryerson & Son Inc., 2558 W. 16th St., Box 8000-A, Chicago 10, Ill. 6

BOILERS

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
Bethlehem Steel Co., Bethlehem, Penn. 65
Wm. Bros. Boiler & Mfg. Co., 1057 10th Ave., S.E., Minneapolis 14, Minn.
Combustion Eng. Corp., 1315 N. Branch St., Chicago, Ill. 61
Cyclotherm Corp., 157 E. 157 St., Oswego, N. Y.
The Dorr Co., 570 Lexington Ave., New York 12, N. Y. 54
Edge Moor Iron Works, Inc., Edge Moor, Del.
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 14
Manitowoc Engrg. Works, Manitowoc, Wis. 42
McDermott Bros. Co., Ft. of Washington St., Allentown, Penn.
Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
Struthers Wells Corp., 1003 Pennsylvania Ave., West, Warren, Penn.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
The Wickes Boiler Co., 515 W. Washington Ave., Saginaw, Mich.

BOILERS, Waste Heat

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
Wm. Bros. Boiler & Mfg. Co., 1057 10th Ave., S.E., Minneapolis 14, Minn.
Edge Moor Iron Works, Inc., Edge Moor, Del.
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 14
McDermott Bros. Co., Ft. of Washington St., Allentown, Penn.
Struthers Wells Corp., 1003 Pennsylvania Ave., West, Warren, Penn.
Southwestern Engineering Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
The Wickes Boiler Co., 515 N. Washington Ave., Saginaw, Mich.

BOOSTERS, Voltage, Motor Generator (see Electrical Equipment)

BOOTS, Rubber (see Safety Equipment)

BRAKE LINING

Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y.
The Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron 17, Ohio
Gatke Corp., 228 N. La Salle St., Chicago 1, Ill. 39

Green, Tweed & Co., 4377 Bronx Blvd., New York 66, N. Y.
Johns-Manville, 22 E. 40th St., New York 16, N. Y.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
The Raybestos Div. of Raybestos-Manhattan, Inc., P. O. Box 1021, Bridgeport 2, Conn.
Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J.
Southern Friction Materials Co., P. O. Box 1475, Charlotte 1, N. C.
Thermoid Co., Whitehead Road, Trenton 6, N. J.
Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.
T. B. Wood's Sons Co., Fifth Ave., Chambersburg, Penn.
The S. K. Wellman Co., 1374 East 51st St., Cleveland 3, Ohio.

SHAKES, Clutch, Hydraulic, Magnetic

Electric Controller & Mfg. Co., 2700 E. 79th St., Cleveland 4, Ohio
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Stearns Magnetic Mfg. Co., 675 S. 28th St., Milwaukee 4, Wis.
Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo. (Hydraulic)
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

BREAKERS (See Circuit Breakers)

BRICK, Refractory, Fire, Acid-Proof, Insulating (see also Refractories, Fire Brick)

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
Bosfield Refractories Co., 777 S. Swanson St., Philadelphia 47, Penn.
The Carborundum Co., Niagara Falls, N. Y.
The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kansas
The Denver Fire Clay Co., P. O. Box 5510, Denver 17, Colo.
General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.
A. P. Green Fire Brick Co., Mexico, Mo.
Harbison - Walker Refractories Co., 1800 Farmers Bank Building, Pittsburgh 22, Penn.
Johns-Manville, 22 E. 40th St., New York 16, N. Y.
Laclede - Christy Clay Products Co., Ambassador Bldg., St. Louis 1, Mo.
E. J. Lavino & Co., 1528 Walnut St., Philadelphia 2, Penn.
Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.
Permanente Cement Co., Kaiser Bldg., Oakland, Calif.
Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
Selas Corp. of America, Erie Ave. and D St., Philadelphia 34, Penn.
F. L. Smith & Co., 60 E. 42nd St., New York 17, N. Y. 71
Stockton Fire Brick Co., 1267 Russ Building, 235 Montgomery Street, San Francisco, Calif.

Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago 3, Ill.
Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

BRICK MACHINES AND MOLDS, Concrete, Sand-Lime

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
Besser Mfg. Co., Alpena, Mich. 170, 183
Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo. 191
Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga. 169, 191
Delaware Industries, Inc., 1406 E. 18th St., Muncie, Ind.
W. E. Dunn Mfg. Co., Holland, Mich.
Fleming Mfg. Co., Inc., 4985 Flyer Ave., St. Louis 9, Mo. 190
International Engineering, Inc., 1145 Bolander Ave., Dayton 8, Ohio
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
The Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Multiplex Concrete Mch. Co., Elmore, Ohio 163
R. S. Reed Corp., E. Hoffman St., Three Rivers, Mich. 164
W. A. Riddell Corp., Bucyrus, Ohio
Stearns Mfg. Co., Inc., Adrian, Mich.

BRIDGES, Material Handling

Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
Dravo Corp., Neville Island, Pittsburgh 25, Penn.
Downs Crane & Hoist Co., 540 W. Vernon Ave., Los Angeles 37, Calif.
Industrial Brownhoist Corp., 135 Washington, Bay City, Mich.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Minneapolis-Moline Power Implement Co., Box 1050, Minneapolis 1, Minn.
Pacific Car & Fdy. Co., 4th & Factory Sts., Renton, Wash.
Robins Conveyors Inc., (Div. of Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J. 56
Stephens Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio 157
Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y. 20

BUCKET LOADERS (See also Loaders, Trucks)

Athey Truss Wheel Co., 5631 W. 65th St., Chicago 38, Ill.
Barber-Green Co., 631 W. Park Ave., Aurora, Ill. 16
Bonded Scale Co., 41 Bellview Ave., Columbus 7, Ohio 189
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.

Eagle Crusher Co., Inc., 900 Harding Way East, Gallion, Ohio
Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
George Haiss Mfg. Co., Inc., Park Ave. & 143 St., New York 51, N. Y.
The Frank G. Hough Co., East Sunnyside Ave., Libertyville, Ill.
Hyster Co., 2902 N. E. Clackamas St., Portland 8, Ore.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Lessmann Mfg. Co., P.O. Box 873, Des Moines 4, Iowa
Link-Belt Co., 2045 West Hunting Park Ave., Philadelphia 40, Penn. 1
M. P. McCaffrey, Inc., 2121 E. 25th St., Los Angeles 11, Calif.
Ottawa Steel Products, Inc., 1st & Walnut, Ottawa, Kans.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Truk-Loder Co., 45 Grace St., Tiffin, Ohio

BUCKET PARTS

American Manganese Steel Division, 77 E. 14th St., Chicago Heights, Ill. 45
Auburn Wire Cloth Corp., (Subsidiary of Manganese Steel Forge Co.) Richmond St. & Castor Avenue, Philadelphia, Penn.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
Bucyrus-Erie Co., South Milwaukee, Wis. 4th Cover Chain Belt Co., 140 W. Bruce St., Milwaukee, Wis.
Bruce St., Milwaukee, Wis.
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
Erie Steel Construction Co., Box 1031, Erie, Penn. 192
Electric Steel Fdy., 2141 NW 25th Ave., Portland, Ore.
The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
George Haiss Mfg. Co., 391 Canal Pl., New York 51, N. Y.
Hendrick Mfg. Co., 39 Dundaff St., Canton 1, Penn. 156
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
The Owen Bucket Co., 6001 Breakwater Ave., Cleveland 2, Ohio 288
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Robins Conveyors Inc., (Div. of Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J. 56
Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
The Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio 157
BUCKETS, Clamshell, Grab and Orange Peel
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.

DIRECTORY

Electric Steel Fdy. Co., 2141 N.W. 25th Ave., Portland 10, Oregon
 Erie Steel Construction Co., Geist Road and NKP Railroad, Erie, Penn. 192
 Electric Steel Fdry., 2141 NW 25th Ave., Portland, Ore.
 The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
 George Halsz Mfg. Co., Inc., Park Ave. & 143rd St., New York 51, N. Y.
 Harnischfeger Corp., 4440 W. National, Milwaukee, Wis. 145, 158
 The Hayward Co., 50 Church St., New York 7, N. Y. 287
 Industrial Brownhoist Corp., 135 Washington, Bay City, Mich.
 C. S. Johnson Co., Box 71, Champaign, Ill.
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Joseph F. Klesler Co., 938 W. Huron St., Chicago, Ill.
 Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
 M. P. McCaffrey, Inc., 2121 East 25th St., Los Angeles 11, Calif.
 Manitowoc Engr. Works, Manitowoc, Wis. 42
 Orton Crane & Shovel Co., 608 S. Dearborn St., Chicago, Ill.
 The Owen Bucket Co., 6001 Breakwater Ave., Cleveland 2, Ohio 288
 Pettibone Mulliken Corp., 4720 W. Division, Chicago, Ill.
 Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
 The Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio 157
 Western Mch. Co., 760 Folsom St., San Francisco, Calif.

BUCKETS, Dragline and Slackline

American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Ind.
 Bay City Shovels, Inc., Bay City, Mich.
 Beaumont Birch Co., 1512 Race St., Philadelphia, Penn.
 Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Buckeye Traction Ditcher Co., Crystal St., Findlay, Ohio
 Bucyrus-Erie Co., South Milwaukee, Wis. 4th Cover
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 De Soto Foundry, Inc., Hendrix Bucket Dept., Mansfield, La.
 Electric Steel Fdy. Co., 2141 N.W. 25th Ave., Portland 10, Oregon
 Erie Steel Construction Co., Geist Road and NKP Railroad, Erie, Penn. 192
 The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
 Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
 Hanson Clutch & Machine Co., Tiffin, Ohio
 Harnischfeger Corp., 4400 W. National, Milwaukee 14, Wis. 145, 158
 Hayward Co., 50 Church St., New York, N. Y. 287
 Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
 M. P. McCaffrey, Inc., 2121 East 25th St., Los Angeles 11, Calif.
 Owen Bucket Co., 6001 Breakwater Ave., Cleveland, Ohio 288

Page Engineering Co., Clearing P. O., Chicago, Ill. 148
 "Quick-Way" Truck Shovel Co., P. O. Box 1800, Denver, Colo.
 Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Sauerman Bros., Inc., 522 S. Clinton St., Chicago 7, Ill. 152
 Street Brothers Machine Co., 415 Times Bldg., Chattanooga 2, Tenn.
 Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
 Traylor Engr. & Mfg. Co., Tenth & Harrison Sts., Allentown, Penn. 7
 The Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio 157
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.
 Yaun Welding & Dragline Buckets, Inc., 2120 N. 3rd St., Baton Rouge, La.

BUCKETS, Dredge and Excavator

American Manganese Steel Division, 377 E. 14th St., Chicago Heights, Ill. 36, 45
 American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Ind.
 Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Buckeye Traction Ditcher Co., Crystal St., Findlay, Ohio
 Bucyrus-Erie Co., South Milwaukee, Wis. 4th Cover
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Electric Steel Fdy. Co., 2141 N.W. 25th Ave., Portland 10, Ore.
 Erie Steel Construction Co., 19th & Geist Road, Erie, Penn. 192
 The Frog, Switch & Mfg. Co., E. High St., Carlisle, Penn. 150
 George Halsz Mfg. Co., 391 Canal Pl., New York 51, N. Y.
 The Hayward Co., 50 Church St., New York 7, N. Y. 27
 Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Jos. F. Klesler Co., 938 W. Huron St., Chicago, Ill.
 Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
 Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 The Owen Bucket Co., 6001 Breakwater Ave., Cleveland 2, Ohio 288
 Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
 The Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio 157

BUCKETS, Elevator

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 American Manganese Steel Division, 377 E. 14th St., Chicago Heights, Ill. 36, 45
 Anderson Engineering Co., 225 Bent St., Cambridge 41, Mass.
 Austin-Western Co., Aurora, Ill.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio
 Beaumont Birch Co., 1512 Race St., Philadelphia 2, Penn.
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 L. Burmeister Co., 4535 W. Mitchell St., Milwaukee 4, Wis.
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.

Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
 Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill.
 The Columbus Conveyor Co., 869 W. Goodale St., Columbus, Ohio
 Continental Gin Co., Industrial Division, 4500 5th Ave. So., Birmingham, Ala. 136
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Diamond Iron Works, Inc. and The Mahr Mfg. Co., 1800 N. 2nd St., Minneapolis 11, Minn.
 Eagle Crusher Co., Inc., 900 Harding Way East, Gallon, Ohio
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 158
 The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah.
 Erie Steel Construction Co., 19th & Geist Road, Erie, Penn. 192
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio
 The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
 Greenville Mfg. Works, Greenville, Ohio
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 George Halsz Mfg. Co., 391 Canal Pl., New York 51, N. Y.
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
 The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa. 67
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave. Bldg., New York 16, N. Y. 14, 15
 Lewistown Fdry. & Mach. Co., Lewistown, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Engineering Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Maddox Foundry & Machine Works, Archer, Fla.
 Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
 Manganese Steel Forge Co., Richmond & Castor Ave., Philadelphia, Penn.
 Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
 D. J. Murray Mfg. Co., Wausau, Wis.
 National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio
 National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
 N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J.
 New Holland Mfg. Co., Mountville, Penn. 154
 Omega Machine Co., Div. of Builders Iron Foundry, 22 Coddling St., Providence 1, R. I.
 Pettibone-Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
 Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.

Pressed Steel Car Co., Inc., 2500 Koppers Bldg., 436 7th Ave., Pittsburgh 30, Penn.
 Ransome Mch. Corp., 42 Thomas St., Dunellen, N. J.
 Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
 Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
 F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71
 Smith Engr. Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 10, 11
 The Standard Metal Mfg. Co., Malinta, Ohio 196
 Sprout, Waldron, Muncy, Penn.
 Stephens-Adamson Mfg., 7 Ridgeway Ave., Aurora, Ill.
 Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
 Traylor Engr. & Mfg. Co., Allentown, Penn. 7
 Universal Engr. Corp., 625 C Ave., W., Cedar Rapids, Iowa
 Universal Road Mch. Co., 27 Emerick St., Kingston, N. Y. 287
 Webster Mfg., Inc., Tiffin, Ohio
 Western Machy. Co., 760 Folsom St., San Francisco, Calif.
 Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo. 27
 Wisconsin Foundry & Mach. Co., 623 E. Main, Madison 1, Wis.

BUCKETS, Tramway

Alpha Tank & Sheet Metal Mfg. Co., 5007 S. 38th St., St. Louis, Mo.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 The Chase Fdry. & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 The Cleveland Crane & Engr. Co., 1109 East 283rd St., Wickliffe, Ohio
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Morse Bros. Mchry. Co., P. O. Box 1708, Denver, Colo.
 Pressed Steel Car Co., Inc., 2500 Koppers Bldg., 436 7th Ave., Pittsburgh 30, Penn.

BUGGIES, Concrete

Construction Machinery Co., Glenwood & Vinton St., Waterloo, Iowa
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Gar-Bro Mfg. Co., Div. of Garlinghouse Bros. Mfg. Co., 2416 E. 16th St., Los Angeles 21, Calif.
 Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
 C. S. Johnson Co., Champaign, Ill.
 D. J. Murray Mfg. Co., Wausau, Wis.
 Pressed Steel Car Co., Inc., 2500 Koppers Bldg., 436 7th Ave., Pittsburgh 30, Penn.
 Ransome Mch. Corp., 42 Thomas St., Dunellen, N. J.
 Worthington Pump & Machinery Co., Harrison, N. J.

BUILDING, Block, Tile Machines

Anchor Concrete Mch. Co., 1191 Fairview Ave., Columbus 8, Ohio 164
 Besser Mfg. Co., Alpena, Mich. 170, 183
 Concrete Transport Mixer Co., Inc., 650 Rosedale Ave., St. Louis 12, Mo. 188

DIRECTORY

Delaware Industries, Inc.,
1406 E. 18th St., Muncie,
Ind.
W. E. Dunn Mfg. Co., Hol-
land, Mich.
Fleming Mfg. Co., Inc., 4985
Fryer Ave., St. Louis 9,
Mo. 190
Jackson & Church Co., 321
N. Hamilton St., Saginaw,
Mich.
Kent Machine Co., Cuyahoga
Falls, Ohio 187
The Miles Mfg. Co., 545-7
Hupp Ave., Jackson, Mich.
Multiplex Concrete Machin-
ery Co., Elmore, Ohio 163
Stearns Mfg. Co., Inc.,
Adrian, Mich.

BUILDINGS, Industrial, all Steel

The American Rolling Mill
Co., 703 Curtis St., Middle-
town, Ohio
Blaw-Knox Co., Blawnox,
Penn. 160
The H. K. Ferguson Co., 19
Rector St., New York,
N. Y.
Henry J. Kaiser Co., Latham
Square Bldg., Oakland 12,
Calif.
Fred T. Kern Co., Box 2057,
Milwaukee 1, Wis.
Minneapolis-Moline Power-
Implement Co., Box 1050,
Minneapolis 1, Minn.
Morrow Mfg. Co., 722 E.
Tenth St., Wellston, Ohio
Pacific Car & Fdry. Co.,
Factory St., Renton, Wash.
Republic Steel Corp., Rep-
ublic Bldg., Cleveland 1,
Ohio
Tennessee Coal, Iron & Rail-
road Co., Brown-Marx
Bldg., Birmingham 2, Ala-
bama
Truscon Steel Co., Albert St.,
Youngstown 1, Ohio

BULK CEMENT HANDLING EQUIPMENT

Alpha Tank & Sheet Metal
Mfg. Co., 5001 S. 38th St.,
St. Louis 16, Mo.
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Beaumont Birch Co., 1505
Race St., Philadelphia 2,
Penn.
Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh 22,
Penn. 160
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Francisco
24, Calif.
Butler Bin Co., Waukesha,
Wis.
Chain Belt Co., 1649 W. Bruce
St., Milwaukee 4, Wis.
The Columbus Conveyor Co.,
869 W. Goodale St., Colum-
bus, Ohio
Continental Gin Co., Indus-
trial Division, 4500 5th Ave.,
So., Birmingham, Ala. 136
Conveyor Co., Inc., 3260 E.
Slauson Ave., Los Angeles
11, Calif.
The J. B. Ehrsam & Sons
Mfg. Co., Enterprise, Kans. 158
Erie Steel Construction Co.,
Geist Road and NKP Rail-
road, Erie, Penn. 192
Fuller Co., Fuller Bldg.,
Catasauqua, Penn. 25
Heltzel Steel Form & Iron
Co., 1750 Thomas Rd.,
Warren, Ohio
Hercules Steel Products Co.,
Gallion, Ohio
Jeffrey Mfg. Co., 935-99 N.
4th St., Columbus 16, Ohio 63
C. S. Johnson Co., P. O. Box
71, Champaign, Ill.
Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y. 15
Link-Belt Co., 300 W. Persh-
ing Rd., Chicago 9, Ill. 1
Lippmann Engr. Wks., 4603
W. Mitchell, Milwaukee
14, Wis.
Madsen Iron Works, 5631
Blickett St., Huntington
Park, Calif.

Robins Conveyors Inc., (Div.
of Hewitt-Robins Inc.),
270 Passaic Ave., Passaic,
N. J.
Screw Conveyor Corp., 700
Hoffman St., Hammond,
Ind.
F. L. Smidth & Co., 11 West
42nd St., New York 18,
N. Y. 68, 71
Sprout, Waldron, Muncy,
Penn.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Syntrol Co., 450 Lexington
Ave., Homer City, Penn. 150

BULK CEMENT STORAGE PLANTS

Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh 22,
Penn. 160
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Francisco
24, Calif.
Butler Bin Co., Waukesha,
Wis.
Conveyor Co., Inc., 3260 E.
Slauson Ave., Los Angeles
11, Calif.
Erie Steel Construction Co.,
Geist Road and NKP Rail-
road, Erie, Penn. 192
Heltzel Steel Form & Iron
Co., 1750 Thomas Rd.,
Warren, Ohio
C. S. Johnson Co., P. O. Box
71, Champaign, Ill.
Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y. 15
Madsen Iron Works, 5631
Blickett St., Huntington
Park, Calif.
The Neff & Fry Co., 150 S.
Main St., Camden, Ohio
The Nicholson Co., 10 Rocke-
feller Plaza, New York 20,
N. Y.
Noble Corp., 1860 7th St.,
Oakland 7, Calif.
Standard Steel Corp., 5001
Boyle St., Los Angeles 11,
Calif.

BULLDOZERS, LAND CLEARING EQUIPMENT

Allis-Chalmers Mfg. Co.,
Milwaukee 1, Wis. 49, 53
Anderson Engr. Co., 225 Bent
St., Cambridge 41, Mass.
Austin-Western Co., Aurora,
Ill.
The Baker Mfg. Co., 10th &
Stanford, Springfield, Ill.
Wm. Bros. Boiler & Mfg.
Co., 1057 10th Ave., S.E.,
Minneapolis 14, Minn.
Buckeye Traction Ditcher
Co., Crystal St., Findlay,
Ohio
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th Cover
Caterpillar Tractor Co., Peo-
ria 8, Ill.
Cleveland Tractor Co., 19300
Euclid Ave., Cleveland 17,
Ohio
Gar Wood Industries, Inc.,
7924 Riolopelle St., Detroit
11, Mich.
The Hell Co., 3000 W. Mon-
tana St., Milwaukee 1,
Wis.
Hi-Way Service Corp., 3857
W. Wisconsin Ave., Mil-
waukee 8, Wis.
Frank G. Hough Co., East
Sunnyside Ave., Liberty-
ville, Ill.
LaPlant-Choate Mfg. Co.,
Inc., 2920 1st Ave., N.E.,
Cedar Rapids, Iowa 46
R. G. LeTourneau, Inc., 2301
North Adams, Peoria 3, Ill.
M. P. McCaffrey, Inc., 2121
East 25th St., Los Angeles
11, Cal.
Minneapolis-Moline Power
Implement Co., Box 1050,
Minneapolis 1, Minn.
Ottawa Steel Products, Inc.,
Ottawa, Kan.
Pacific Car & Foundry Co.,
Factory St., Renton,
Wash.
Southwest Welding & Mfg.
Co., 3200 W. Mission Rd.,
Alhambra, Cal.

BURIAL VAULT FORMS, Concrete

The Ashland Vault, Inc., 114
Seventh St., Ashland, Ohio
Automatic Sealing Vault Co.,
Peru, Ind.
Berg Vault Co., Equipment
Div., 1620 Lucas Hunt
Blvd., St. Louis, Mo. 190
Doswell-Kover, 1821 Howell
St., Fort Wayne 3, Ind.
Wilbert W. Haase Co., 1005
Troost Ave., Forest Park,
Ill.
Norwalk Vault Co., Wood-
lawn Ave., Norwalk, Ohio
Safety Vault Co., 1700 Urbana
Rd., Cleveland 12, Ohio
Sterling Concrete Vault Co.,
5400 Northwest Highway,
Chicago, Ill.

BURNERS, Kiln

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49, 53
The Denver Fire Clay Co.,
P. O. Box 5510, Denver 17,
Colo.
Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y. 15
The Babcock & Wilcox Co.,
85 Liberty St., New York
6, N. Y. 74
Lime & Hydrate Plants Co.,
P. O. Box 1387, York,
Penn.
Macleod Co., 2232-40 Bogen
St., Cincinnati, Ohio
Raymond Pulverizer Div.,
Combustion Engineering
Co., Inc., 1319 N. Branch
St., Chicago 22, Ill. 61
W. A. Riddell Corp., Bucy-
rus, Ohio
Ruggles-Coles Engr. Co., 122
E. 42nd St., New York,
N. Y.
Selas Corp. of America, Erie
Ave. and D St., Philadel-
phia 34, Penn.
F. L. Smidth & Co., 11 W.
42nd St., New York 18,
N. Y. 71
Staples & Pfeiffer, 528 Bry-
ant St., San Francisco 7,
Calif.
Traylor Engineering & Mfg.
Co., Tenth & Harrison Sts.,
Allentown, Penn. 7

BURNERS, OIL (See Oil Burners)

CABINETS, First Aid (See also Safety Equip- ment)

Boyer-Campbell Co., 6540 An-
toine St., Detroit 2, Mich.
The Industrial Products Co.,
2705 N. Fourth St., Phila-
delphia 33, Penn.
Mine Safety Appliances Co.,
Braddock, Thomas &
Meade St., Pittsburgh 8,
Penn.
Pulmosan Safety Equipment
Corp., 176 Johnson St.,
Brooklyn 1, N. Y.

CABLE, Electric

Aluminum Company of Amer-
ica, 801 Gulf Bldg., Pitts-
burgh 19, Penn.
Anaconda Wire & Cable Co.,
25 Broadway, New York 4,
N. Y.
General Electric Co., 1 River
Rd., Schenectady 5, N. Y.
Hobart Bros. Co., Hobart
Square, Troy, Ohio
Lincoln Electric Co., 12818
Coit Rd., Cleveland 1, Ohio
Okonite Co., Passaic, N. J.
John A. Roebling's Sons Co.,
640 S. Broad, Trenton 2,
N. J.
Simplex Wire & Cable Co.,
79 Sidney St., Cambridge
39, Mass.
United States Rubber Co.,
1230 6th Ave., New York
20, N. Y.

CABLE, ELECTRIC (Repair Compound)

Anaconda Wire & Cable Co.,
25 Broadway, New York 4,
N. Y.
Glover Coating Co., 376
Washington St., Malden,
Mass.
Okonite Co., Passaic, N. J.
United States Rubber Co.,
1230 6th Ave., New York
20, N. Y.

CABLE ACCESSORIES, Connectors, Etc.

Albert & J. M. Anderson
Mfg. Co., 291 A Street,
Boston 10, Mass.
Aluminum Company of Amer-
ica, 801 Gulf Bldg., Pitts-
burgh 19, Penn.
Anaconda Wire & Cable Co.,
25 Broadway, New York 4,
N. Y.
Electric Steel Fdry., 2141
NW 25th Ave., Portland,
Ore.
Electroline Co., 4121 S.
La Salle St., Chicago, Ill.
General Electric Co., 1 River
Rd., Schenectady 5, N. Y.
The Hayward Co., 50 Church
St., New York 7, N. Y.
(Cable Reels) 287
Ideal Commutator Dresser
Co., Park & Borden Aves.,
Sycamore, Ill.
Manson Glover, 213 Pleasant
Stoughton, Mass. (Repair
Compound)
United States Rubber Co.,
1230 6th Ave., New York
20, N. Y.

CABLE COATINGS, Electric

General Electric Co., 1 River
Rd., Schenectady 5, N. Y.
The B. F. Goodrich Co.,
Akron, Ohio 3
The Goodyear Tire & Rub-
ber Co., Inc., 1144 E. Mar-
ket, Akron, Ohio 9
Okonite Co., Passaic, N. J.
Sackrete, Inc., Apple & Van-
dalla Aves., Cincinnati 23,
Ohio
United States Rubber Co.,
1230 6th Ave., New York
20, N. Y.

CABLE EXCAVATORS

American Hoist & Derrick
Co., 63 S. Robert St., St.
Paul, Minn. 153
Beaumont Birch Co., 1505
Race Street, Philadelphia,
Penn.
Downs Crane & Hoist Co.,
540 W. Vernon Ave., Los
Angeles 37, Calif.
Harnischfeger Corp., 4400 W.
National Ave., Milwaukee
14, Wis. 145, 158
Hyster Co., 2902 N.E. Clack-
amas St., Portland 8, Ore.
Link-Belt Speeder Corp., 301
W. Pershing Rd., Chicago 9,
Ill. 1
Meckum Engr., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Saurman Bros., Inc., 522 S.
Clinton St., Chicago 7, Ill. 152
Southwest Welding & Mfg.
Co., 3201 W. Mission Rd.,
Alhambra, Calif.
Street Brothers Machine Co.,
415 Times Bldg., Chatta-
nooga 2, Tenn.
Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.

CABLE CONNECTORS (Rubber Covered)

Electroline Co., 4121 S.
La Salle St., Chicago, Ill.
The Manhattan Rubber Mfg.
Div. of Raybestos-Manhat-
tan, Inc., 61 Willett St.,
Passaic, N. J. 59
John A. Roebling's Sons Co.,
640 S. Broad St., Trenton
2, N. J. 17

DIRECTORY

Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.
United States Rubber Co.,
1230 6th Ave., New York
20, N. Y.

CABLEWAYS

American Chain & Cable Co.,
Inc., Bridgeport, Conn.
rd Cover
American Steel & Wire Co.,
Rockefeller Bldg., Cleve-
land 13, Ohio
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th Cover
Hazard Wire Rope Co.,
American Chain & Cable
Co., Inc., Wilkes-Barre
Penn. 3rd Cover
McKlerman Terry Corp., 505
Manor Ave., Harrison, N. J.
Pacific Car & Foundry Co.,
Factory St., Renton, Wash.
Robins Conveyors Inc., (Div.
Hewitt-Robins, Inc.), 270
Passaic Ave., Passaic, N. J. 56
John A. Roebeling's Sons Co.,
640 S. Broad, Trenton 2,
N. J. 17
Sauerman Bros., Inc., 522 S.
Clinton St., Chicago 7, Ill. 152
Street Brothers Machine Co.,
415 Times Bldg., Chatta-
nooga 2, Tenn.

CALCINING MACHINERY, Cement, Lime, Gypsum, Etc.

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 53
Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh 22,
Penn. 160
L. R. Christie Co., 17 East
42nd St., New York 17,
N. Y.
The Bonnot Co., Mulberry
St., Canton 2, Ohio
J. P. Devine Mfg. Co., Inc.,
909 Shawnee, Mt. Vernon,
Ill.
J. B. Ehrsam & Sons Mfg.
Co., Enterprise, Kans. 158
Ellerman Co., 203 Continen-
tal Bldg., Salt Lake City,
Utah
Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
The Her-Born Engr. & Mfg.
Co., Box 666, Sandusky,
Ohio
Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.
Bldg., New York 16, N. Y. 14, 15
Lime & Hydrate Plants Co.,
P. O. Box 1387, York,
Penn.
Manitowoc Eng. Wks., Man-
itowoc, Wis. 42
Nichols Engineering & Re-
search Corp., 60 Wall
Tower, New York 5, N. Y.
Nordberg Mfg. Co., 3083 S.
Chase St., Milwaukee 7,
Wis. 22
Raymond Pulverizer Div.,
Combustion Engr. Co., 1319
N. Branch St., Chicago 22,
Ill. 61
Ruggles-Coles Eng. Co., 122
E. 42nd St., New York,
N. Y.
F. L. Smith & Co., 11 W.
42nd St., New York 18,
N. Y. 71
Traylor Eng. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn. 7
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.

CALCIUM CHLORIDE

Calcium Chloride Assn.,
Penobscot Bldg., Detroit,
Mich.
Columbia Alkali Corp., Bar-
berton, Ohio (Div. of Pitts-
burgh Plate Glass Co.)
The Dow Chemical Co., Mid-
land, Mich.
E. I. du Pont de Nemours &
Co., Nemours Bldg., Wil-
mington 18, Del. 66
Michigan Alkali Co., Ford
Bldg., Detroit, Mich.

Pittsburgh Plate Glass Co.,
Columbia Chemical Div.,
5th Ave. at Bellefield,
Pittsburgh 19, Penn.
Solvay Sales Corp., 40 Rector
St., New York 6, N. Y.

CAGES, Mine

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 53
C. S. Card Iron Works Co.,
2501 W. 16th Ave., Denver,
Colo.
Connellsville Mfg. & Mine
Supply Co., Connellsville,
Penn.
Eagle Iron Works, 129 Hol-
comb Ave., Des Moines 4,
Iowa 301
Elmco Corp., P. O. Box 300,
Salt Lake City 8, Utah
Groch Engr. Co., 628 W. 9th
St., Los Angeles 15, Calif.
Joshua Hendy Iron Wks.,
Box 37, Sunnyvale, Calif.
Robert Holmes & Bros. Inc.,
515 Junction Ave., Dan-
ville, Ill.
The McCarter Iron Wks.,
Inc., Mill & Washington
Sts., Norristown, Penn.
The Mine & Smelter Supply
Co., P. O. Box 5270, Ter-
minal Station, Denver 17,
Colo.
D. J. Murray Mfg. Co., Wau-
saw, Wis.
Rogers Iron Works Co., 11th
& Pearl, Joplin, Mo.
Southwestern Eng. Co., 4800
Santa Fe Ave., Los Angeles
11, Calif.
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
Western Machinery Co., 760
Folsom St., San Francisco,
Calif.

CAPACITORS, Electrical (See Electrical Instru- ments)

CAPS, BLASTING (See Blasting Caps)

CAPSTANS

The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Bucyrus-Erie Co., P. O. Box
56, South Milwaukee, Wis.
4th Cover
Clyde Iron Works, Inc., 29th
Ave., West and Michigan
St., Duluth 1, Minn.
Continental Gin Co., Indus-
trial Division, 4500 5th
Ave., So., Birmingham,
Ala. 136
Detroit Hoist & Machine Co.,
8214 Morrow Ave., Detroit
11, Mich.
Diamond Iron Works, Inc.,
and The Mahr Mfg. Co.
Div., 1800 N. 2nd St., Min-
neapolis 11, Minn.
Dobbie Fdy. & Machine Co.,
146-170 Portage Rd., Nla-
gara Falls, N. Y.
Electro Lift, Inc., 30 Church
St., New York 7, N. Y.
The Four Wheel Drive Auto
Co., Clintonville, Wis.
Fruehauf Trailer Co., 10940
Harper Ave., Detroit 13,
Mich.
Gar Wood Industries, Inc.,
7924 Riopelle St., Detroit
11, Mich.
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Link-Belt Co., 2410 West 18th
St., Chicago 8, Ill. 1
McGann Mfg. Co., Inc., Box
1187, York, Penn.
McKlerman-Terry Corp., 15
Park Row, New York 7,
N. Y.
Meckum Engr., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Morrow Mfg. Co., 722 E. 10th
St., Wellston, Ohio
Novo Engine Co., 702 Porter
St., Lansing, Mich.
Pacific Car & Foundry Co.,
Factory St., Renton, Wash.

Robins Conveyors Inc., (Div.
Hewitt-Robins, Inc.), 270
Passaic Ave., Passaic, N. J.
Silent Hoist & Crane Co.,
Inc., 841-65 63rd St., Brook-
lyn 20, N. Y.
Six Wheels, Inc., 1559-1584
E. 20th St., Los Angeles
11, Calif.
Stephen-Adamson Mfg. Co.,
7 R. deway, Aurora, Ill.
Street Bros. Machine Co.,
415 Ochs Bldg., Chatta-
nooga 2, Tenn.
Struthers Wells Corp., 1003
Pennsylvania Ave., West
Warren, Penn.
Webster Mfg., Inc., Tiffin,
Ohio
The Wellman Engr. Co., 7000
Central Ave., Cleveland 4,
Ohio 157

CAR COUPLINGS

American Car & Foundry
Co., 30 Church St., New
York 8, N. Y.
The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
The C. S. Card Iron Works
Co., 2501 W. 16th Ave.,
Denver 1, Colo.
The Chase Foundry & Mfg.
Co., 2400 Parsons Ave.,
Columbus 7, Ohio 194
Maddox Foundry & Machine
Works, Archer, Fla.
D. J. Murray Mfg. Co., Wau-
saw, Wis.
National Malleable and Steel
Castings Co., 10600 Quincy
Ave., Cleveland, Ohio
Pacific Car & Fdy. Co., 4th
and Factory St., Reaton,
Wash.
Pressed Steel Car Co., Inc.,
Indus. Div., 2500 Koppers
Bldg., Pittsburgh 30, Penn.
Sanford-Day Iron Works,
Inc., Dale Ave., Knoxville,
Tenn.

CAR DUMPERS

The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
The C. S. Card Iron Works
Co., 2501 W. 16th Ave.,
Denver 1, Colo.
Differential Steel Car Co.,
Findlay, Ohio
Easton Car & Construction
Co., Box 270, Easton,
Penn.
Industrial Brownhoist Corp.,
135 Washington St., Bay
City, Mich.
Link-Belt Co., 330 W. Persh-
ing Rd., Chicago 9, Ill. 1
Pressed Steel Car Co., Inc.,
Indus. Div., 2500 Koppers
Bldg., Pittsburgh 30,
Penn.
Robins Conveyors Inc., (Div.
Hewitt-Robins, Inc.), 270
Passaic Ave., Passaic,
N. J.
The Wellman Engr. Co., 7000
Central Ave., Cleveland 4,
Ohio 157
The Woodford Engr. Co., 77
W. Washington St., Chi-
cago 2, Ill.

CAR LINERS

American Manganese Steel
Division, 377 E. 14th St.,
Chicago Heights, Ill. 45
Audubon Wire Cloth Corp.
(Subsidiary of Manganese
Steel Forge Co.), Rich-
mond St. & Castor Ave.,
Philadelphia, Penn.
The Frog, Switch & Manu-
facturing Co., E. High St.,
Carlisle, Penn. 150
The C. S. Card Iron Works
Co., 2501 W. 16th Ave.,
Denver 1, Colo.
Hendrick Mfg. Co., 39 Dun-
daff St., Carbondale, Penn.
Kensington Steel Co., 505
Kensington Ave., Chicago
28, Ill. 156
Pressed Steel Car Co., Inc.,
Indus. Division, 2500 Kop-
pers Bldg., Pittsburgh 30,
Penn.

CAR LOADERS (See Loaders, Car)

CAR MOVERS (Pullers)

Advance Car Mover, Inc., P.
O. Box 536, Appleton, Wis.
American Hoist & Derrick
Co., 63 S. Robert St., St.
Paul 1, Minn. 153
Appleton-Atlas Car Mover
Corp., 2947 N. 30th St.,
Milwaukee, Wis.
The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Fran-
cisco 24, Calif.
Clyde Iron Works, Inc., 29th
Ave., W. & Michigan St.,
Duluth 1, Minn.
Continental Gin Co., Indus-
trial Div., 4500 5th Ave.,
So., Birmingham, Ala. 136
Diamond Iron Works, Inc.,
and The Mahr Mfg. Co.
Div., 1728 N. 2nd St., Min-
neapolis 11, Minn.
Dobbie Fdy. & Mach. Co.
146-170 Portage Rd., Nla-
gara Falls, N. Y.
The J. B. Ehrsam & Sons
Mfg. Co., Enterprise, Kans. 158
Electro Lift, Inc., 30 Church
St., New York 7, N. Y.
L. B. Foster Co., P. O. Box
1647, Pittsburgh 30, Penn.
Gar Wood Industries, Inc.,
7924 Riopelle St., Detroit
11, Mich.
Gifford-Wood Co., Hudson,
N. Y.
Godfrey Conveyor Co., 13th
& Wolf, Elkhart, Ind.
R. R. Howell Co., P. O. Box
264, Minneapolis, Minn.
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
W. A. Jones Fdy. & Machine
Co., 4401 Roosevelt Rd.,
Chicago 24, Ill.
Link-Belt Co., 2410 W. 18th
St., Chicago 8, Ill. 1
McKlerman-Terry Corp., 505
Manor Ave., Harrison,
N. J.
Ottumwa Iron Works, Main
St., Ottumwa, Iowa
W. A. Riddell Corp., Buc-
yrus, Ohio
Robins Conveyors, Inc., (Div.
Hewitt-Robins, Inc.), 270
Passaic Ave., Passaic, N. J.
Silent Hoist & Crane Co.,
Inc., 841-65 63rd St., Brook-
lyn 20, N. Y.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Street Brothers Machine Co.,
415 Times Bldg., Chatta-
nooga 2, Tenn.
Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.
The Industrial Products Co.,
2705 N. Fourth St., Phila-
delphia 33, Penn.
Webster Mfg., Inc., Tiffin,
Ohio
Wellman Engr. Co., 7000
Central Ave., Cleveland 4,
Ohio 157
Western Gear Works, 417
Ninth South, Seattle 4,
Wash.
Whiting Corp., Harvey, Ill.

CAR WHEELS

American Manganese Steel
Div., 377 E. 14th St.,
Chicago Heights, Ill. 45
The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
Bethlehem Steel Co., 701
E. Third St., Bethlehem,
Penn. 65
Bodinson Mfg. Co., 2401
Bayshore Blvd., San Fran-
cisco 24, Calif.
The Bonnot Co., Mulberry
Rd., S. E., Canton, Ohio

DIRECTORY

C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver, Colo.

Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.

The Chase Fdy. & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194

Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill.

Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.

Dresser Mfg. Div., Dress Industries, Inc., 41 Fischer Ave., Bradford, Penn.

Eagle Iron Wks., 129 Holcomb Ave., Des Moines 4, Iowa 301

Electric Steel Fdry., 2141 NW 25th Ave., Portland, Ore.

Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148

Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio

George Haiss Mfg. Co., 391 Canal Pl., New York 51, N. Y.

Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.

Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

McGann Mfg. Co., P. O. Box 1187, York, Penn.

McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139

The Medart Co., 100 Potomac St., St. Louis 18, Mo.

D. J. Murray Mfg. Co., Wausau, Wis.

National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio

Ottumwa Iron Works, Main St., Ottumwa, Iowa

Pacific Car & Fdy. Co., 4th and Factory Sts., Renton, Wash.

Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.

H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Penn.

Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.

Sanford-Day Iron Works, Inc., 612 Dale Ave., Knoxville 9, Tenn.

Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137

CARS. Concrete Products

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164

American Car Foundry Co., 30 Church St., New York 8, N. Y.

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio

Besser Mfg. Co., Alpena, Mich. 170, 183

The C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver 1, Colo.

Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194

W. E. Dunn Mfg. Co., 23 W. 24th St., Holland, Mich.

Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.

Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.

Multiplex Concrete Machinery Co., Elmore, Ohio. 163

Pacific Car & Fdy. Co., 4th & Factory Sts., Renton, Wash.

H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Penn.

Stearns Mfg. Co., Inc., Adrian, Mich.

CARS. Dump

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio

American Car & Foundry Co., 30 Church St., New York 8, N. Y.

Austin-Western Co., Aurora, Ill.

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio

Bethlehem Steel Co., 701 E. Third St., Bethlehem, Penn. 65

C. S. Card Iron Wks. Co., 2501 W. 16th Ave., Denver, Colo.

The Chase Fdy. & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194

Differential Steel Car Co., Findlay, Ohio

Easton Car & Construction Co., Box 270, Easton, Penn.

Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.

International Engineering Inc., 1145 Bolander Ave., Dayton 8, Ohio

Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.

Maddox Fdy. & Mach. Wks., Archer, Fla.

Ottumwa Iron Wks., 402 W. Main St., Ottumwa, Iowa

Pacific Car & Fdy. Co., 4th & Factory Sts., Renton, Wash.

H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.

Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Penn.

W. A. Riddell Corp., Bucyrus, Ohio

Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.

Sanford-Day Iron Works, Inc., 612 Dale Ave., Knoxville 9, Tenn.

Strub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28

Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.

Traylor Eng. & Mfg. Co., Allentown, Penn. 7

CARS (Electric, Remote Control)

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland Ohio

Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.

Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.

Pressed Steel Car Co., Inc., Indus. Div., 2500 Koppers Bldg., Pittsburgh 30, Penn.

The Woodford Engr. Co., 77 W. Washington St., Chicago 2, Ill.

CARS. Mine, Quarry, Industrial

American Car & Foundry Co., 30 Church St., New York 8, N. Y.

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio

Austin-Western Co., Aurora, Ill.

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio

Bethlehem Steel Co., 701 E. Third St., Bethlehem, Penn. 65

The Buda Co., 15401 Commercial Ave., Harvey, Ill.

C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver, Colo.

Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.

Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.

The Chase Fdy. & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 48

Differential Steel Car Co., Findlay, Ohio

Easton Car & Construction Co., Box 270, Easton, Penn.

Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148

Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.

Helmick Foundry-Machine Co., Lock Drawer 71, Fairmont, W. Va.

Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.

Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.

Maddox Fdy. & Mach. Wks., Archer, Fla.

Manitowoc Eng. Works, Manitowoc, Wis. 42

Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo.

Morse Bros. Mch. Co., P. O. Box 1708, Denver 1, Colo.

National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.

Ottumwa Iron Wks., Main St., Ottumwa, Iowa

Pacific Car & Fdy. Co., Factory St., Renton, Wash.

H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Penn.

W. A. Riddell Corp., 201 E. Warren, Bucyrus, Ohio

Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.

Sanford-Day Iron Works, Inc., 612 Dale Ave., Knoxville 9, Tenn.

Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.

Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.

Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Watt Car & Wheel Co., Barnesville, Ohio

Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

CARTRIDGES. Oil Filter

Accessories Corp., Gastonia, N. C.

W. G. B. Oil Clarifier, Inc., Kingston, N. Y.

Wix Accessories Corp., Ozark St., Gastonia, N. C.

CARTRIDGES (Rotary, Kilm. Slag Removal)

Cardox Corp., 307 N. Michigan Ave., Chicago 1, Ill.

Western Cartridge Co., Div. of Olin Industries, Inc., East Alton, Ill.

CASTINGS (Repair Parts): Bronze

Bethlehem Steel Co., 701 E. 3rd St., Bethlehem, Penn. 65

Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.

Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.

Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.

McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139

Maddox Fdy. & Mach. Wks., Archer, Fla.

Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.

Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

Morris Machine Wks., Baldwinville, N. Y. 151

R. D. Wood Co., Public Ledger Bldg., Philadelphia 5, Penn.

CASTINGS (Repair Parts): Grey-Iron

Allis - Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53

American Car & Foundry Co., 30 Church St., New York 8, N. Y.

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74

Bethlehem Steel Co., 701 E. Third St., Bethlehem, Penn. 65

The Bonnot Co., Mulberry Rd. S.E., Canton, Ohio

The Burch Corp., Crestline, Ohio

The Chase Fdy. & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194

Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.

Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala. 136

Davenport-Besler Corp., 2305 Rockingham Rd., Davenport, Iowa 158

Diamond Iron Wks. & The Mahr Mfg. Co. Div., 1728 N. 2nd St., Minneapolis 11, Minn.

Dobbie Fdy. & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.

Dunning & Boschert Press Co., 382 W. Water St., Syracuse 4, N. Y.

Eagle Iron Wks., 129 Holcomb Ave., Des Moines 4, Iowa 301

The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah

Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.

Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148

Farrell-Birmingham Co., Inc., Ansonia, Conn.

Hardinge Co., Inc., 240 Arch St., York, Penn. 147

Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.

Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.

R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.

Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63

Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Pa.

Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.

Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind. 1

McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139

Maddox Fdy. & Mach. Wks., Archer, Fla.

Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.

Manitowoc Engr. Wks., Manitowoc, Wis. 42

Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

The Medart Co., 100 Potomac St., St. Louis 18, Mo.

Morris Machine Wks., Baldwinville, N. Y. 151

Multiplex Concrete Mch. Co., Elmore, Ohio 163

New Holland Machine Co., 100 Franklin St., New Holland, Penn. 154

Ottumwa Iron Wks., Main St., Ottumwa, Iowa

The Pennebaker Co., Fourth & Furnace Sts., Emmaus, Penn.

H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.

Quinn Wire & Iron Wks., Boone, Iowa

Robins Conveyors, Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.

Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.

Sanford-Day Iron Wks., Inc., Dale Ave., Knoxville, Tenn.

DIRECTORY

F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y.68, 71
Sprout, Waldron, Muncy, Penn.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stedman's Fdy. & Machine Wks., Aurora, Ind.
Traylor Engineering & Mfg. Co., Tenth & Harrison Sts., Allentown, Penn.137
The Webb Corp., 402 E. Broadway, Webb City, Mo.
Webster Mfg., Inc., Tiffin, O.
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.
T. B. Woods Sons Co., Fifth Ave., Chambersburg, Penn.
R. D. Wood Co., Public Ledger Bldg., Independence Sq., Philadelphia 5, Penn.

CASTINGS (Repair Parts): Heat-Resisting Steel

Allis - Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
American Brake Shoe Co., Electro-Alloys Div., Taylor St. & Abbey Rd., Elyria, Ohio36, 45
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.74
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn.65
The Duraloy Co., Scottsdale, Penn.
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Ore.
Enterprise Engine & Foundry Co., 18th & Florida Sts., San Francisco 10, Calif.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.1
McLanahan & Stone Corp., Hollidaysburg, Penn.139
Pacific Car & Foundry Co., Factory St., Renton, Wash.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y.68, 71
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
R. D. Wood Co., Public Ledger Bldg., Independence Square, Philadelphia 5, Penn.

CASTINGS (Repair Parts): Malleable

Allis - Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio63
Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.1
Meckum Eng. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.68, 71
Webster Mfg., Inc., Tiffin, Ohio.

CASTINGS (Repair Parts): Manganese Steel

Allis - Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.45
Bethlehem Steel Co., 701 E. Third St., Bethlehem, Penn.65
Dunning & Boschert Press Co., 382 W. Water St., Syracuse 4, N. Y.
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Ore.
Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N.Y.148
Farrel-Birmingham Co., Inc., Ansonia, Conn.
The Frog, Switch & Mfg. Co., Carlisle, Penn.148
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
Joseph T. Ryerson & Sons, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.6
F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.68, 71
Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.
Taylor-Warton Iron & Steel Co., High Bridge, N. J.137

CASTINGS (Repair Parts): Special Alloys

Allis - Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.45
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.74
Bethlehem Steel Co., 701 E. Third St., Bethlehem, Penn.65
Coast Metals, Inc., 1234 Camden Ave., Canton 6, Ohio
The Duraloy Co., Scottsdale, Penn.
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Ore.
Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N.Y.148
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Hills-McCanna Co., 2349 Nelson St., Chicago 18, Ill.
International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.139
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
The Pennebacker Co., Emmaus, Penn.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.

Joseph T. Ryerson & Son Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.6
F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.68, 71
Sprout, Waldron, Muncy, Penn.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J.137
Traylor Eng. & Mfg. Co., Tenth and Mill Sts., Allentown, Penn.7
Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y.
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
Wall-Colmonoy Corp., 714 Fisher Bldg., Detroit 2, Mich.
R. D. Wood Co., Public Ledger Bldg., Independence Sq., Philadelphia 5, Penn.

CASTINGS (Repair Parts): Steel

Allis - Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
American Manganese Steel Div. of American Brake Shoe Co., 377 E. 14th St., Chicago Heights, Ill.45
Bethlehem Steel Co., 701 East Third St., Bethlehem, Penn.65
Birdsboro Steel Fdy. & Machine Co., 1941 Furnace St., Birdsboro, Penn.
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Ore.
Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N.Y.148
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn.147
Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
Link-Belt Co., 519 N. Holmes Ave., Indianapolis 6, Ind.1
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
The Mine & Smelter Supply Co., P. O. Box 5270 Terminal Station, Denver 17, Colo.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
Joseph T. Ryerson & Son Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.6
Sedgwick & Stanhope, 15 S. William St., New York 4, N. Y.
F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.68, 71
Taylor-Wharton Iron & Steel Co., High Bridge, N. J.137
Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.

CATCH BASIN BLOCK MACHINERY AND MOLDS

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio164
Besser Mfg. Co., Alpena, Mich.170, 183
Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo.191
Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
The Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Multiplex Concrete Mch. Co., Elmore, Ohio163
Stearns Mfg. Co., Inc., Adrian, Mich.

CEMENT, Boiler Setting

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.74
General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia, Penn.
A. P. Green Fire Brick Co., Mexico, Mo.
Harblson-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Penn.
Johns-Manville, 22 E. 40th St., New York 16, N. Y.
Laclede-Christy Clay Products Co., Ambassador Bldg., St. Louis 1, Mo.
E. J. Lavino & Co., 1528 Walnut St., Philadelphia 2, Penn.
Mexico Refractories Co., Cole & Love Sts., Mexico, Mo.
Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.
Universal Zonolite Insulation Co., 135 S. La Salle St., Chicago 3, Ill.
Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

CEMENT, Insulating

Baldwin-Hill Co., 500 Breunig Ave., Trenton, N. J.
Botfield Refractories Co., 777 S. Swanson St., Philadelphia 47, Penn.
General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.
The Denver Fire Clay Co., P. O. Box 5510, Denver 17, Colo.
A. P. Green Fire Brick Co., Mexico, Mo.
Harblson-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Penn.
Johns-Manville, 22 E. 40th St., New York 16, N. Y.
Laclede-Christy Clay Products Co., Ambassador Bldg., St. Louis 1, Mo.
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, Ohio
Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.
The Ruberoid Co., 500 Fifth Ave., New York, N. Y.
Sackrete Inc., Apple & Vandalla Sts., Cincinnati 23, Ohio
Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago 3, Ill.
Walsh Refractories Corp., 4070 N. 1st St., St. Louis 7, Mo.

CEMENT, Refractory

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.78
Botfield Refractories Co., 777 S. Swanson St., Philadelphia 47, Penn.
The Carborundum Co., P. O. Box 337, Niagara Falls, N. Y.
The Denver Fire Clay Co., P. O. Box 5510, Denver 17, Colo.
General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.
A. P. Green Fire Brick Co., Mexico, Mo.
Harblson-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Penn.

DIRECTORY

Johns-Manville, 22 E. 40th St., New York 16, N. Y.
Laclede-Christy Clay Products Co., Ambassador Bldg., St. Louis 1, Mo.
E. J. Lavino & Co., 1528 Walnut St., Philadelphia 2, Penn.
Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
The Permanente Products Co., 1712 First Circle Tower Bldg., Akron, Ohio
Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.
The Ruberoid Co., 500 Fifth Ave., New York, N. Y.
Stockton Fire Brick Co., 1267 Russ Bldg., 235 Montgomery St., San Francisco, Calif.
Universal Zonolite Insulation Co., 135 S. La Salle St., Chicago 3, Ill.
Walsh Refractories Corp., 4070 North First St., St. Louis 7, Mo.

CEMENT COOLERS (See Coolers, Bulk Cement)

CEMENT DISPERSION AGENTS

American Fluoresit Co., Inc., 635 Rockdale, Cincinnati 29, Ohio
Dewey & Almy Chem. Co., 62 Whittemore Ave., Cambridge, Mass.
Lasting Prod. Co., 200 S. Franklinton Rd., Baltimore 23, Md.
Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, Ohio
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.

CEMENT AND MASONRY COLORS

American Fluoresit Co., Inc., 635 Rockdale, Cincinnati 29, Ohio
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
Landers-Segal Color Co., 78 Delevan St., Brooklyn, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, Ohio
Ricketson Mineral Color Works, 229 E. Wisconsin Ave., Milwaukee 2, Wis.
Tamm's Silica Co., 228 N. La Salle St., Chicago 1, Ill.
Utility Color Co., 377-99 Frelinghuysen Ave., Newark 5, N. J.
C. K. Williams & Co., 640 North 13th St., Easton, Penn.

CEMENT PLANTS, Engineers & Contractors

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 53
Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
Colorado Iron Works Co., 1624 17th St., Denver 2, Colo.
The Dorr Co., 570 Lexington Ave., New York 22, N. Y.
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y., 14, 15
Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.

E. C. Machin Co., 624 Commonwealth Bldg., Allentown, Penn.
Macdonald Engr. Co., 188 W. Randolph St., Chicago, 1, Ill.
McGann Mfg. Co., Inc., Box 1187, York, Penn.
The Nicholson Co., Inc., 10 Rockefeller Plaza, New York 20, N. Y.
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 1, Wis., 5
Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn., 72
Ritter Products Corp., Ritter Park, Rochester 3, N. Y.
Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
Separation Process Co., Fuller Bldg., Catsauqua, Penn.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y., 15
Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass., 2nd Cover
Traylor, Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn., 7
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
Western Mch. Co., 760 Folsom St., San Francisco, Calif.

CEMENT PUMPS (Finished Cement)

Fuller Co., Fuller Bldg., Catsauqua, Penn., 24, 25
Gardner-Denver Co., Quincy, Ill.
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y., 14, 15
Ransome Mch. Corp., 42 Thomas St., Dunellen, N. J.
Separation Process Co., Fuller Bldg., Catsauqua, Penn.
Robinson Air Activated Conveyor Systems, Division of Morse Boulder Destructor Co., 205 E. 42nd St., New York 17, N. Y.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y., 68, 71

CEMENT TESTING APPARATUS (See Testing Equipment)

CENTRAL MIXING PLANTS, Concrete

C. O. Bartlett & Snow Co., 6194 Harvard Ave., Cleveland, Ohio
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn., 160
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Commercial Concrete Equip. Co., 1 Wolf's Lane, Pelham 65, N. Y.
Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo., 188
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
Erie Steel Construction Co., Geist Road and NKP Railroad, Erie, Penn., 192
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
Hill Mfg. Co., 144 N. Fourth St., Columbus 1, Ohio.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Madsen Iron Works, 5631 Blckett St., Huntington Park, Calif.

Mixermobile Co., Inc., 608 S. Hill St., Los Angeles, Calif., 200
Multiplex Concrete Machinery Co., Elmore, Ohio, 163
Noble Co., 1860 7th St., Oakland 7, Calif.
Ransome Mch. Corp., 42 Thomas St., Dunellen, N. J.
T. L. Smith Co., 2835 N. 32nd St., Milwaukee 10, Wis., 167
Spears-Wells Machy. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
Stephens-Adamsen Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

CENTRIFUGES, Cement Slurry, Etc.

Bird Machine Co., S. Walpole, Mass.
Centrifuge Mechanical Equipment, Inc., 95 River St., Hoboken, N. J.
Merco Centrifugal Co., 582 Market St., San Francisco 4, Calif.
Separation Process Co., Fuller Bldg., Catsauqua, Penn.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y., 71
Western Machinery Co., 760 Folsom St., San Francisco, Calif.

CHAIN, Dredge and Shovel

American Chain Div., American Chain & Cable Co., Inc., York, Penn., 3rd Cover
American Manganese Steel Division, 377 E. 14th St., Chicago Heights, Ill., 45
Bucyrus-Erie Co., South Milwaukee, Wis., 4th Cover
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Columbus McKinnon Chain Corp., Tonawanda, N. Y.
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Oregon
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave. Bldg., New York, N. Y., 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill., 1
Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
Meckum Engineering Co., 53 W. Jackson Blvd., Chicago 4, Ill.
National Malleable & Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio
Pacific Car & Fdy. Co., 4th and Factory St., Renton, Wash.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago, Ill.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J., 137

CHAIN DRIVES

Atlantic Gear Works Inc., 200 Lafayette St., New York 12, N. Y.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio, 194
Continental Gin Co., Industrial Division, 4500 5th Ave., So. Birmingham, Ala., 136
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

Cook Bros. Equipment Co., 3330 San Fernando Rd., Los Angeles 41, Calif.
Diamond Chain & Mfg. Co., 402 Kentucky Ave., Dept. 520, Indianapolis 7, Ind.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan., 158
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y., 148
Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
Industrial Gear Mfg. Co., 4544 W. Van Buren St., Chicago 24, Ill.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Link-Belt Co., 220 South Belmont Ave., Indianapolis 6, Ind., 1
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morse Chain Co., Turner Place, Ithaca, N. Y.
Philadelphia Gear Wks., Inc., Erie Ave. & G. St., Philadelphia 34, Penn.
Stephen-Adamsen Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

CHAIN, Elevating and Conveying

American Cable Div., American Chain & Cable Co., Inc., York, Penn., 3rd Cover
American Manganese Steel Division, 377 E. 14th St., Chicago Heights, Ill., 45
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Beaumont Birch Co., 1505 Race St., Philadelphia, Penn.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Continental Gin Co., Industrial Division, 4500 5th Ave., So. Birmingham, Ala., 136
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Diamond Chain & Mfg. Co., 520 Kentucky Ave., Indianapolis 7, Ind.
Eagle Crusher Co., Inc., 900 Harding Way, E. Gallon, Ohio
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan., 158
Electric Steel Fdry., 2141 W. 25th Ave., Portland, Ore.
Fairfield Engr. Co., Marion, Ohio
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y., 148
Farrell-Cheek Steel Co., P. O. Box 721, Sandusky, Ohio
Gifford-Wood Co., Hudson, N. Y.
George Halss Mfg. Co., Inc., 391 Canal Pl., New York, N. Y.
Industrial Gear Mfg. Co., 4544 W. Van Buren St., Chicago 24, Ill.
Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Ia., 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave. Bldg., New York 16, N. Y., 14, 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.

DIRECTORY

Kent Machine Co., Cuyahoga Falls, Ohio 187
Link-Belt Co., 220 South Belmont Ave., Indianapolis 6, Ind. 1
Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morse Chain Co., Turner Place, Ithaca, N. Y.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
D. J. Murray Mfg. Co., Wausau, Wis.
National Steel Prod. Co., 1611 Crystal Ave., Kansas City 3, Mo.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
Union Chain & Mfg. Co., 1936 Emmans St., Sandusky, Ohio
Webster Mfg. Inc., Tiffin, Ohio
Wisconsin Fdy. & Machine Co., 623 E. Main, Madison 1, Wis.

CHA N. Heat Exchanger, etc.

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Oregon
Link-Belt Co., 220 So. Belmont Ave., Indianapolis 6, Ind. 1
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71

CHA N LINKS, Fittings, Hooks, Etc.

American Chain Div., American Chain & Cable Co., Inc., York, Penn. 3rd Cover
American Manganese Steel Division, 377 E. 14th St., Chicago Heights, Ill. 45
Audubon Wire Cloth Corp. (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Bucyrus-Erie Co., P. O. Box 56, South Milwaukee, Wis. 4th cover
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Columbus McKinnon Chain Corp., Tonawanda, N. Y.
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Oregon
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Thomas Laughlin Co., 143 Fore St., Portland 6, Maine
Link-Belt Co., 220 So. Belmont Ave., Indianapolis 6, Ind. 1
National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio
Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y. 20
Wisconsin Fdy. & Machine Co., 623 E. Main, Madison 1, Wis.

CHA NS. Drag

American Chain Div., American Chain & Cable Co., Inc., York, Penn. 3rd Cover
American Manganese Steel Division, 377 E. 14th St., Chicago Heights, Ill. 45

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
Chain Belt Co., 1649 W. Bruce St., Milwaukee, 4, Wis.
Columbus McKinnon Chain Corp., Tonawanda, N. Y.
Continental Gin Co., Industrial Division, 4500 5th Ave., So., Birmingham, Ala. 136
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The J. B. Ehrsam & Sons, Mfg. Co., Enterprise, Kan. 158
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Oregon
Farrell-Chek Steel Co., P.O. Box 721, Sandusky, Ohio
Greenville Mfg. Works, Greenville, Ohio
George Haiss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Link-Belt Co., 220 South Belmont Ave., Indianapolis 6, Ind. 1
Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
D. J. Murray Mfg. Co., Wausau, Wis.
National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio
Joseph T. Ryerson & Son, Inc., 16th and Rockwell St., Chicago, Ill. 6
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

CHIMNEY BLOCK MACHINERY & MOLDS. Concrete

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
Besser Manufacturing Co., Alpena, Mich. 170, 183
Multiplex Concrete Machinery Co., Elmore, Ohio 163
Stearns Mfg. Co., Inc., Adrian, Mich.

CHUTE LININGS. Rubber

The American Rubber Mfg. Co., 1145 Park Ave., Oakland 8, Calif.
Boston Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.
The Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio
Continental Rubber Works, 1902 Liberty St., Erie, Penn.
The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia 4, Penn.
The B. F. Goodrich Co., Akron, Ohio 3
The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
Hewitt Rubber Corp., 240 Kensington Ave., Buffalo 5, N. Y. 56
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn. 12
Republic Rubber Division, Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio
Thermoid Rubber Div. of Thermoid Co., Whitehead Rd., Trenton 6, N. J.
United States Rubber Co., 1230 6th Ave., New York 20, N. Y.

ROPE LININGS. Other

American Car & Foundry Co., 30 Church St., New York 8, N. Y.
American Manganese Steel Division, 389 E. 14th St., Chicago Heights, Ill. 45
Audubon Wire Cloth Corp. (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn.
The Babcock & Wilcox Co., 85 Liberty Street, New York, N. Y. 74
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 19, Penn.
Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
Electric Steel Fdy., 2141 N.W., 25th Ave., Portland, Ore.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
The Frog, Switch & Manufacturing Co., E. High St., Carlisle, Penn. 150
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia 4, Penn.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Iowa Mfg. Co., 916-16th St., N. E., Cedar Rapids, Iowa 67
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 14, 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Lewistown Foundry & Machine Co., 16 Elizabeth, Lewistown, Penn.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
Southern Friction Materials Co., P. O. Box 1475, Charlotte 1, N. C.
Sprout, Waldron, Muncy, Penn.
Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137

CHUTES

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
L. Burmeister Co., 3225 W. Burnham St., Milwaukee 4, Wis.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Continental Gin Co., Industrial Division, 500 S. 5th Ave., Birmingham 2, Ala. 136
Diamond Iron Works, Inc., and the Mahr Mfg. Co. Division, 1800 N. 2nd St., Minneapolis 11, Minn.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158

Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
George Haiss Mfg. Co., Inc., Park Ave. & 143rd St., New York 51, N. Y.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Hercules Steel Products Co., Galion, Ohio
Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave., New York, N. Y. 14, 15
The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
Lewistown Foundry & Machine Co., 16 Elizabeth, Lewistown, Penn.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Eng. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
National Steel Products Co., 1611 Crystal Ave., Kansas City 3 Mo.
The Neff & Fry Co., Camden, Ohio
New Holland Mfg. Co., Mountville, Pa. 154
Pacific Car & Fdy. Co., 4th and Factory St., Renton, Wash.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Pioneer Engr. Works, 1515 Central Ave., Minneapolis 13, Minn.
Ransome Mch. Co., 42 Thomas St., Dunellen, N. J.
Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N.J.
Sprout, Waldron, Muncy, Penn.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 41 Harrison Square, Boston 22, Mass. 2nd Cover
Taylor-Wharton Iron & Steel Co., Highbridge, N. J. 137
Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
Universal Rd. Mch. Co., 27 Emerick St., Kingston, N. Y. 287
Webster Mfg. Inc., Tiffin, Ohio
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.
Worthington Pump & Machinery Co., Harrison, N. J.

CIRCUIT BREAKERS

Albert & J. M. Anderson Mfg. Co., 231 A Street, Boston 10, Mass.
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Electric Machinery Mfg. Co., 1331 Tyler St., N.E., Minneapolis, Minn.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Philadelphia 30, Penn.

DIRECTORY

Smith Engr. Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 11
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

CIRCUIT TESTERS (Electrical) (See Electrical Instruments)

CLARIFIERS, AIR (See Air Filters)

CLARIFIERS, OIL

Briggs Clarifier Co., 1339 Wisconsin Ave., N. W., Washington 7, D. C.
Parsons Engr. Corp., 2545 E. 79th St., Cleveland 4, Ohio
Selas Corp. of America, Erie Ave. & D St., Philadelphia 34, Penn.
Wix Accessories Corp., Ozark St., Gastonia, N. C.

CLASSIFIERS, Centrifugal

Bird Machine Co., Rucaduc Road, S. Walpole, Mass.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71

CLASSIFIERS, Electrostatic

Ritter Products Corp., Ritter Park, Rochester 3, N. Y.
Sutton, Steele & Steele, Inc., 1031 So. Haskell St., Dallas 10, Texas.

CLASSIFIERS, Hydraulic

Allen Cone & Mch. Co., 120 Broadway, New York 5, N. Y.
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Colorado Iron Works Co., 1624 17th St., Denver 2, Colo.
The Deister Concentrator Co., 901-935 Glasgow Ave., Fort Wayne 1, Ind.
Deister Machine Co., 1933 E. Wayne St., Fort Wayne 4, Ind. 149
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
Eagle Iron Works, 129 Holcomb, Des Moines, Iowa. 301
Eriez Mfg. Co., E. 12th St., Erie, Penn.
The Gallicher Co., 48 South Second East St., Salt Lake City 1, Utah
Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids 1a, N. E. 67
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave., New York 16, N. Y. 14, 15
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Engr. Works, 4603 W. Mitchell, Milwaukee 14, Wis.
McLanahan & Stone Corp., Hollidaysburg, Penn. 139
Maddox Foundry & Machine Works, Archer, Fla.
The Mine & Smelter Supply Co., 1422 17th St., Denver, Colo.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
Smith Engineering Works, 532 E. Capitol Dr., Milwaukee, Wis. 10, 11
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.

Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
Western Machinery Co., 760 Folsom St., San Francisco, Calif.

CLASSIFIERS, SAND (See Sand Recovery Machinery)

CLEANING MACHINES, Bag (See Bag Cleaners)

CLINKER COOLERS (See Coolers, Cement Lime, etc.)

CLIPS, WIRE ROPE (See Wire Rope Fittings)

CLOTH, WIRE (See Wire Cloth)

CLUTCH FACINGS (See Brake Linings)

CLUTCHES

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Cal.
Continental Gin Co., Industrial Division, 4500 5th Ave. South Birmingham, Ala. 136
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Dings Magnetic Separator Co., 501 E. Smith St., Milwaukee 7, Wis.
Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
Foote Bros. Gear & Machine Corp., 5225 S. Western Blvd., Chicago 9, Ill.
Godfrey Conveyor Co., 13th & Wolf Sts., Elkhart, Ind.
George Halss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
The Hillard Corp., 401 W. 4th St., Elmira, N. Y.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
W. A. Jones Fdy. & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
Kent Machine Co., Cuyahoga Falls, Ohio 187
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Maddox Fdy. & Machine Works, Archer, Fla.
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Pioneer Engr. Works, 1515 Central Ave., Minneapolis 13, Minn.
Rockwood Mfg. Co., 1801 English Ave., Indianapolis, Ind.
Salsbury Motors, Inc., 1201 Lexington, Pomona, Calif.
Stearns Magnetic Mfg. Co., 675 S. 28th St., Milwaukee 4, Wis.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Twin Disc Clutch Co., 1361 Racine St., Racine, Wis.
T. B. Wood's Sons Co., Fifth Ave., Chambersburg, Penn.

COAL PULVERIZING EQUIPMENT

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
The Bonnot Co., Mulberry Rd., S.E. Canton, Ohio
Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
Diamond Iron Wks., Inc., and the Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
Dixie Mch. Mfg. Co., 4200 Goodfellow, St. Louis, Mo. 47
Eagle Crusher Co., 900 Harding Way, East, Gallion, Ohio
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y. 14, 15
Lippmann Engr. Works, 4603 W. Mitchell St., Milwaukee, 14, Wis.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
The Mine & Smelter Supply Co., Box 5270 Terminal Station, Denver 17, Colo.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Raymond Pulverizer Div., Combustion Eng. Co., Inc., 1319 North Branch Street, Chicago 22, Ill. 61
Silent Hoist & Crane Co., Inc., 841-65 63rd Street, Brooklyn 20, N. Y.
F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y. 68, 71
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Strong-Scott Mfg. Co., 451 Taft St., N.E. Minneapolis 13, Minn.
Sturtevant Mill Co., 41 Harrison Sq., Boston 22, Mass. 2nd Cover
Traylor Eng. & Mfg. Co., Allentown, Penn. 137
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo. 27

COAL PULVERIZING EQUIPMENT, Direct-Firing Unit Mills

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Babcock & Wilcox Co., 85 Liberty St., New York, N. Y. 74
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave. Bldg., New York 16, N. Y. 14, 15
Raymond Pulverizer Div., Combustion Engr. Co., Inc., 1319 North Branch Street, Chicago 22, Ill. 61
F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y. 68, 71
The Stearns-Roger Mfg. Co., 1718-1722 California St., Denver 2, Colo.
Strong-Scott Mfg. Co., 451 Taft St., N.E. Minneapolis 13, Minn.
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27

COAL PULVERIZING EQUIPMENT, Direct-Firing Unit Mills

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Babcock & Wilcox Co., 85 Liberty St., New York, N. Y. 74
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave. Bldg., New York 16, N. Y. 14, 15
Raymond Pulverizer Div., Combustion Engr. Co., Inc., 1319 North Branch Street, Chicago 22, Ill. 61
F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y. 68, 71
The Stearns-Roger Mfg. Co., 1718-1722 California St., Denver 2, Colo.
Strong-Scott Mfg. Co., 451 Taft St., N.E. Minneapolis 13, Minn.
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27

COLORS, Cement (See Cement & Masonry Colors)

COLORS, Mortar (See Masonry Colors)

CONCENTRATING TABLES

Allen Cone & Machy. Corp., 120 Broadway, New York 5, N. Y.
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Deister Concentrator Co., 901-935 Glasgow Ave., Fort Wayne, Ind.
Deister Machine Co., 1933 E. Wayne St., Fort Wayne 4, Ind. 149
Denver Equipment Co., 1400 17th St., Denver 17, Colo. 146
Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
The Mine & Smelter Supply Co., P. O. Box 5270 Terminal Station, Denver 17, Colo.
Morse Bros. Machinery Co., P. O. Box 1708, Denver 1, Colo.
Overstrom & Sons, 2213 W. Mission Rd., Alhambra, Calif.
Separations Engr. Corp., 110 E. 42nd St., New York 17, N. Y.
The Stearns-Roger Mfg. Co., 1720 Calif St., Denver 2, Colo.
Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28
Sutton, Steele & Steele, Inc., 1031 S. Haskell St., Dallas 10, Texas

CONCRETE BLOCK MACHINES (See Block Machines; Building Concrete)

CONCRETE CONTROL Systems, Quality

Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.

CONCRETE MIXERS

Allied Welding & Manufacturing Co., 49 Lorna Doone Blvd., Orlando, Fla.
Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
Besser Mfg. Co., Alpena, Mich. 170, 183
Frank L. Blatt Sales Co., Inc., Kottlesnake, Fla.
Chain Belt Company, 1649 W. Bruce St., Milwaukee 4, Wis.
Geo. L. Christopher & Son Iron Wks., 1220 Blaine, Wichita 1, Kans.
Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo. 188
Conserco Co., P. O. Box 4056, Chevy Chase, Md.
Construction Machinery Co., Glenwood & Vinton St., Waterloo, Iowa
Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga. 191
The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kans. 160
W. E. Dunn Manufacturing Co., Holland, Mich.
Equipment Engineering Co., St. Charles, Illinois
Erie Steel Construction Co., 19th & Geist Rd., Erie, Penn. 192
Fabricating & Machinery, Inc., 3226 5th Ave. S., Birmingham 5, Ala. 196
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo. 190
The J. E. Foote Foundry Co., 283 N. Main St., Fredericktown, Ohio.
F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla. 165
Gilson Bros. Co., Fredonia, Wis. 159
Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla. 189
Hill Mfg. Co., 144 N. 4th St., Columbus 1, Ohio.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.

DIRECTORY

Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Kadco Corp., 36-40 11th St., Long Island City, L. I., N. Y. (Subsidiary of Complete Mchy. & Equip. Co.)
E. B. Kelly Co., Farmingdale, N. J.
Kent Machine Co., Cuyahoga Falls, Ohio 187
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Kwik-Mix Co., Port Washington, Wis.
Leader Welding & Mfg. Co., 2418 6th St., Berkeley 2, Calif.
The Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Mixermobile Co., Inc., 608 S. Hill St., Los Angeles, Calif. 200
Morris Mfg. Co., 900 Brundage, Bakersfield, Calif.
Morse Bros. Mchy. Co., 2900 Broadway, Denver 1, Colo.
Multiplex Concrete Machinery Co., Elmore, Ohio 163
New Holland Machine Co., 100 Franklin St., New Holland, Penn. 154
H. K. Porter Co., Inc., 49th & Harrison Sts., Pittsburgh, Penn.
Ransome Machinery Co., 42 Thomas St., Dunellen, N. J.
T. L. Smith Co., 2835 N. 32nd St., Milwaukee 10, Wis. 167
Spears-Weils Mchy. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
Stearns Mfg. Co., Adrian, Mich.
Worthington Pump & Machinery Corp., Harrison, N. J.

CONCRETE MIXERS, Truck

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Commercial Concrete Equipment Co., 1 Wolf's Lane, Felham 65, N. Y.
Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo. 191
Conserco Co., P. O. Box 4056, Chevy Chase, Maryland
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Mixermobile Co., Inc., 608 S. Hill Street, Los Angeles, Calif. 200
Ransome Machinery Co., 42 Thomas St., Dunellen, N. J.
T. L. Smith Co., 2835 N. 32nd St., Milwaukee 10, Wis. 167
Spears-Weils Mchy. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
Worthington Pump & Machinery Corp., Harrison, N. J.

CONCRETE MIXING PLANTS (See Central Mixing Plants, Concrete)

CONCRETE PAINTS AND COATINGS

American Cement Paint Co., Chattanooga, Tenn.
American Fluoresit Co., Inc., 635 Rockdale, Cincinnati 29, Ohio.
Colorcrete Industries, Inc., Holland, Mich.
The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kans. 160
E. I. du Pont de Nemours & Co., Inc., Nemours Bldg., Wilmington 98, Del. 66
Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia 4, Penn.
Haynes Products Co., 4007 Farnam St., Omaha 3, Neb.
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.

Prima Products, Inc., 10 E. 40th St., New York 16, N. Y. 185
Quigley Co., Inc., 527 5th Ave., New York 17, N. Y.
Reardon Color & Chem. Wks., Cincinnati, Ohio
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Tamm's Silica Co., 228 N. La Salle St., Chicago, Ill.
Truscon Laboratories, Inc., Caniff & Grand Trunk R. R., Detroit 11, Mich.

CONCRETE PLANTS Premixed, Dry

Sackrete, Inc., Apple & Vandallia Aves., Cincinnati 23, Ohio

CONCRETE PRODUCTS CURING EQUIPMENT

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo. 148
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Multiplex Concrete Machinery Co., Elmore, Ohio 163
Truscon Laboratories, Inc., Caniff & Grand Trunk R. R., Detroit 11, Mich.

CONCRETE PRODUCTS HANDLING EQUIPMENT

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
The Baker-Raulang Co., 2168 W. 25th St., Cleveland 25, Ohio.
Barrett-Cravens Co., 3255 W. 30th St., Chicago, Ill.
Besser Mfg. Co., Alpena, Mich. 170, 183
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
Continental Gin Co., Industrial Div., 4500 5th Ave. So., Birmingham, Ala. 136
W. E. Dunn Mfg. Co., 23 W. 24th St., Holland, Mich.
Easton Car & Construction Co., Box 270, Easton, Penn.
Erickson Special Equipment Co., 2631 Ulysses, N. E., Minneapolis, Minn. 196
Erie Steel Construction Co., 19th & Geist Road, Erie, Penn. 192
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo. 148
Gar-Bro. Mfg. Co., Div. of Garlinghouse Bro., 2416 E. 16th St., Los Angeles 21, Calif.
George Halss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
Hyster Co., 2902 N. E. Clackamas, Portland, Ore.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio.
Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Multiplex Concrete Machinery Co., Elmore, Ohio 163
Quinn Wire & Iron Wks., Boone, Iowa

Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Universal Concrete Machinery Co., Inc., 297 S. High St., Columbus 15, Ohio.
Worthington-Ransome Construction Equipment Division, Holyoke, Mass.

CONCRETE, REINFORCING Steel

American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio.
Bethlehem Steel Co., Bethlehem, Penn. 63
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 19, Penn.
Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.
Jones & Laughlin Steel Corp., 3rd Ave. & Ross St., Pittsburgh 30, Penn.
Kaiser Co., Inc., Iron & Steel Div., Latham Sq. Bldg., Oakland 12, Calif.
Norwalk Vault Co., Woodlawn Ave., Norwalk, Ohio
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Box 8000-A, Chicago 80, Ill. 6
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham 2, Ala.
Truscon Steel Co., Albert St., Youngstown 1, Ohio.
Union Steel Prod. Co., 242 N. Berrien St., Albion, Mich.
Wickwire Spencer Steel Co., 500 5th Ave., New York 18, N. Y. 20

CONCRETE WATERPROOFING AND DAMPPROOFING

American Fluoresit Co., Inc., 635 Rockdale, Cincinnati 29, Ohio.
The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kans.
W. E. Dunn Mfg. Co., 2300 Parsons Ave., Holland, Mich.
Haynes Products Co., 4007 Farnam St., Omaha 3, Neb.
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio.
Prima Products, Inc., 10 E. 40th St., New York 16, N. Y. 185
Sackrete, Inc., Apple St. & Vandalla, Cincinnati, Ohio
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
Solvay Sales Corp., 40 Recor St., New York 6, N. Y.
Truscon Laboratories, Inc., Caniff & Grand Trunk R. R., Detroit 11, Mich.
Universal Zonolite Insulation Co., 135 So. La Salle St., Chicago 3, Ill.

CONDUIT, Concrete, PIPE MACHINES

Concrete Pipe Machinery Co., 9th & Division St., Sioux City 19, Iowa.
Quinn Wire & Iron Wks., Boone, Ia.
Universal Concrete Pipe Co., 297 S. High St., Columbus, Ohio

CONDUIT, Electrical

Aluminum Company of America, 801 Gulf Bldg., Pittsburgh 19, Penn.
American Brass Co., 414 Meadow St., Waterbury 88, Conn.
Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
Johns-Manville, 22 E. 40th St., New York 16, N. Y.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio

CONTROL SYSTEMS, Draft, Temperature, Pressure, Etc.

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Bailey Meter Co., 1050 Ivanhoe Road, Cleveland 10, Ohio
The Bristol Co., Waterbury 91, Conn.
Brown Instrument Co., Div. of Minneapolis Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia 44, Penn. 50
Defender Automatic Regulator Co., 308 S. 8th St., St. Louis 2, Mo.
d'Este Div., American Chain & Cable Co., Inc., Reading, Penn. 3rd Cover
The Foxboro Co., Neponset St., Foxboro, Mass.
The Hays Corp., 642 8th St., Michigan City, Ind.
Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
Manning, Maxwell & Moore, Inc., 11 Elias St., Bridgeport 2, Conn.
F. L. Smith & Co., 11 W. 42nd St., New York 17, N. Y. 68, 71
Traylor Engineering & Mfg. Co., Tenth & Harrison Sts., Allentown, Penn. 7
Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

CONTROLS, Bin and Tank Levels

Bailey Meter Co., 1050 Ivanhoe Road, Cleveland 10, Ohio
The Bin-Dicator Co., 14615 E. Jefferson, Detroit 15, Mich.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
Brown Instrument Co., 4444 Wayne Ave., Philadelphia 44, Penn. 50
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
The Foxboro Co., Neponset St., Foxboro, Mass.
The Hays Corp., 642 8th St., Michigan City, Ind.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 15
Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.
F. L. Smith & Co., 11 W. 42nd St., New York 17, N. Y. 68, 73
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

CONVERTERS, Electric

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Louis Allis Co., 427 E. Steward St., Milwaukee 7, Wis.
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.

DIRECTORY

Crocker-Wheeler Electric Mfg. Co., Div. of Joshua Hendry Iron Works, Am-
pere, N. J.
General Electric Co., 1 River
Rd., Schenectady 5, N. Y.
Groch Engr. Co., 628 W. 9th
St., Los Angeles 15, Calif.
Janette Mfg. Co., 556 West
Monroe St., Chicago 6, Ill.
Morse Bros. Machinery Co.,
2900 Broadway, Denver 1,
Colo.
Traylor Engr. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Pa. 7
Westinghouse Electric &
Mfg. Co., E. Pittsburgh,
Penn.

CONVEYOR BELT TRIPPERS

The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Fran-
cisco 24, Calif.
Chain Belt Co., 1649 W. Bruce
St., Milwaukee 4, Wis.
Champion Line Machinery
Co., 95 Schuyler Ave., No.
Arlington, N. J.
The Columbus Conveyor Co.,
869 W. Goodale St., Colum-
bus, Ohio
Continental Gin Co., Indus-
trial Division, 4500 5th
Ave., So., Birmingham,
Ala. 136
The Conveyor Co., Inc., 3260
E. Slauson Ave., Los An-
geles 11, Calif.
Diamond Iron Works Inc.,
and The Mahr Mfg. Co.
Div., 1800 N. 2nd St., Min-
neapolis 11, Minn.
Dodge Manufacturing Corp.,
500 S. Union St., Misha-
waka, Ind.
The J. B. Ehrsam & Sons
Mfg. Co., Enterprise, Kan.
Fairfield Eng. Co., Marion,
Ohio
Farrel-Bacon Co., Singer
Bldg., 149 Broadway, New
York, N. Y. 148
General Conveyor & Mfg.
Co., 3601 Salena St., St.
Louis 18, Mo.
Groch Engr. Co., 628 W. 9th
St., Los Angeles 15, Calif.
Hewitt Rubber of Buffalo,
Div. of Hewitt-Robins
Inc., 240 Kensington Ave.,
Buffalo 5, N. Y. 56
R. R. Howell Co., P. O. Box
264, Minneapolis, Minn.
Iowa Mfg. Co., 916 16th St.,
N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y. 15
Link-Belt Co., 330 W. Per-
shing Rd., Chicago 9, Ill. 1
Lippmann Eng. Works, 4603
W. Mitchell St., Milwau-
kee 14, Wis.
E. F. Marsh Eng. Co., 4030
Chouteau Ave., St. Louis
10, Mo.
New Holland Mfg. Co.,
Mountville, Pa. 154
Noble Co., 1860 7th St.,
Oakland 7, Calif.
W. A. Riddell Corp., Warren
St., Bucyrus, Ohio
Robins Conveyors Inc., (Div.
Hewitt-Robins, Inc.) 270
Passaic Ave., Passaic,
N. J.
Sprout, Waldron, Muncy,
Penn.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Webster Manufacturing, Inc.,
Tiffin, Ohio
Wisconsin Foundry & Mach.
Co., 623 E. Main St., Madi-
son 1, Wis.

CONVEYOR IDLERS

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill. 45

Anderson Engineering Co.,
225 Bent St., Cambridge
41, Mass.
Atlas Conveyor Co., 15th St.,
Clintonville, Wis.
Barber-Greene Co., 631 W.
Park Ave., Aurora, Ill. 16
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland, Ohio
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Francisco
24, Calif.
Bonded Scale Co., 41 Bell-
view Ave., Columbus 7,
Ohio 189
Chain Belt Co., 1649 W.
Bruce St., Milwaukee 4,
Wis.
Champion Line Machinery
Co., 95 Schuyler Ave., No.
Arlington, N. J.
The Columbus Conveyor Co.,
869 W. Goodale St., Colum-
bus, Ohio
Continental Gin Co., Indus-
trial Division, 4500 5th
Ave. So., Birmingham,
Ala. 136
Conveyor Co., Inc., 3260 E.
Slauson Ave., Los Angeles
11, Calif.
Coyle & Roth Co., Inc., 3024
S. E. 4th St., Minneapolis
14, Minn.
The Dayton Rubber Mfg. Co.,
P. O. Box 1004, Dayton 1,
Ohio
Diamond Iron Works, Inc.
and The Mahr Mfg. Co.
Div., 1800 N. 2nd St., Min-
neapolis 11, Minn.
Dodge Manufacturing Corp.,
500 S. Union St., Misha-
waka, Ind.
The J. B. Ehrsam & Sons
Mfg. Co., Enterprise, Kan.
Farrel-Bacon Co., Singer
Bldg., 149 Broadway, New
York, N. Y. 148
General Conveyor & Mfg.
Co., 3601 Salena St., St.
Louis 18, Mo.
Greenville Mfg. Works,
Greenville, Ohio
Groch Engr. Co., 628 W. 9th
St., Los Angeles 15, Calif.
George Halss Mfg. Co., 391
Canal Pl., New York 51,
N. Y.
Hewitt Rubber of Buffalo,
Div. of Hewitt-Robins
Inc., 240 Kensington Ave.,
Buffalo 5, N. Y. 56
R. R. Howell Co., P. O. Box
264, Minneapolis, Minn.
Iowa Mfg. Co., 916 16th St.,
N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kennedy-Van Saun Mfg. &
Engineering Co., 2 Park
Ave. Bldg., New York City
16, N. Y. 15
Kent Machine Co., Cuyahoga
Falls, Ohio 187
Lewistown Foundry & Ma-
chine Co., 16 Elizabeth St.,
Lewistown, Penn.
Link-Belt Co., 330 W. Per-
shing Rd., Chicago 9, Ill. 1
Lippmann Engineering Wks.,
4603 W. Mitchell St., Mil-
waukee 14, Wis.
Maddox Foundry & Machine
Works, Archer, Fla.
E. F. Marsh Eng. Co., 4030
Chouteau Ave., St. Louis
10, Mo.
Meckum Engineering Inc.,
53 W. Jackson Blvd., Chi-
cago 4, Ill.
Morrow Mfg. Co., 722 E.
Tenth St., Wellston, Ohio
D. J. Murray Mfg. Co.,
Wausau, Wis.
Pioneer Engineering Works,
Inc., 1515 Central Ave.,
Minneapolis 13, Minn.
Portable Mch. Div., A. B.
Farquhar Co., York, Penn.
W. A. Riddell Corp., Bucy-
rus, Ohio
Robins Conveyors, Inc. (Div.
Hewitt-Robins, Inc.) 270
Passaic Ave., Passaic, N. J.
Smith Engineering Works,
532 E. Capitol Dr., Milwau-
kee 12, Wis. 11
Sprout, Waldron, Muncy,
Penn.

The Standard Metal Mfg.
Co., Malinta, Ohio 196
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Trowbridge Conveyor Co.,
750 Van Houten Ave., Clif-
ton, N. J.
Webster Manufacturing, Inc.,
Tiffin, Ohio
Wisconsin Foundry & Mach.
Co., 623 E. Main, Madison
1, Wis.

CONVEYORS, Apron

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49, 53
Alpha Tank & Sheet Metal
Mfg. Co., 5001 S. 38th St.,
St. Louis 16, Mo.
American Manganese Steel
Div., 377 E. 14th Street,
Chicago Heights, Ill. 45
Austin-Western Co., Auro-
ra, Ill.
C. O. Bartlett & Snow Co.,
6200 Harvard Ave., Cleve-
land, Ohio
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Francisco
24, Calif.
Bonded Scale Co., 41 Bell-
view Ave., Columbus 7,
Ohio 189
Chain Belt Co., 1649 W.
Bruce St., Milwaukee 4,
Wis.
Champion Line Machinery
Co., 95 Schuyler Ave., No.
Arlington, N. J.
The Columbus Conveyor Co.,
869 W. Goodale St., Colum-
bus, Ohio
Continental Gin Co., Indus-
trial Division, 4500 5th
Ave. So., Birmingham, Ala.
136
Conveyor Co., Inc., 3260 E.
Slauson Ave., Los Angeles
11, Calif.
Denver Equipment Co., P.O.
Box 5268, Denver 17,
Colo. 146
Diamond Iron Works, Inc.,
and the Mahr Mfg. Co.,
Div., 1800 N. 2nd St.,
Minneapolis 11, Minn.
The J. B. Ehrsam & Sons
Mfg. Co., Enterprise, Kan.
Farrel-Bacon Co., Singer
Bldg., 149 Broadway, New
York, N. Y. 148
General Conveyor & Mfg.
Co., 3601 Salena St., St.
Louis 18, Mo.
Gifford-Wood Co., Hudson,
N. Y.
Godfrey Conveyor Co., 13th
& Wolf, Elkhart, Ind.
Gruendler Crusher & Pulver-
izer Co., 2915-17 North
Market St., St. Louis, Mo.
George Halss Mfg. Co., Inc.,
391 Canal Pl., New York
51, N. Y.
Helmick Foundry & Machine
Co., Lock Drawer 71, Fair-
mont, W. Va.
Robert Holmes & Bros. Inc.,
515 Junction Ave., Dan-
ville, Ill.
Iowa Mfg. Co., 916 16th St.
N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kennedy-Van Saun Mfg. &
Eng. Co., 2 Park Ave.
Bldg., New York 16, City,
N. Y. 15
Kensington Steel Co., 505
Kensington Ave., Chicago
28, Ill.
Lewistown Foundry & Ma-
chine Co., 16 Elizabeth St.,
Lewistown, Penn.
Lime & Hydrate Plants Co.,
232 E. Poplar St., York,
Penn.
Link-Belt Co., 330 W. Per-
shing Rd., Chicago 9, Ill. 1
Lippmann Engineering Wks.,
4603 W. Mitchell St., Mil-
waukee 14, Wis.
McLanahan & Stone Corp.,
200 Wall St., Hollidays-
burg, Penn. 139
E. F. Marsh Eng. Co., 4030
Chouteau Ave., St. Louis
10, Mo.

Mathews Conveyor Co., Tenth
Street, Ellwood City, Penn.
Morrow Mfg. Co., 722 E.
Tenth St., Wellston, Ohio
Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.
New Holland Mfg. Co.,
Mountville, Pa. 154
Pioneer Engr. Works, 1515
Central Ave., Minneapolis
13, Minn.
W. A. Riddell Corp., 201 E.
Warren, Bucyrus, Ohio
Robins Conveyors Inc. (Div.
Hewitt-Robins, Inc.), 270
Passaic Ave., Passaic, N.J.
Rogers Iron Works Co., 11th
& Pearl, Joplin, Mo.
Smith Engineering Works,
532 E. Capitol Dr., Mil-
waukee 12, Wis. 10, 11
Sprout, Waldron, Muncy,
Penn.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Traylor Eng. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn. 7
Universal Engineering Corp.,
625 C Ave., W., Cedar
Rapids, Iowa
Webster Manufacturing, Inc.,
Tiffin, Ohio
Wisconsin Foundry Machine
Co., 623 E. Main St., Madi-
son 1, Wis.

CONVEYORS, Belt

Allied Welding & Manu-
facturing Co., 49 Lorna
Doone Blvd., Orlando, Fla.
Alpha Tank & Sheet Metal
Mfg. Co., 5001 S. 38th St.,
St. Louis 16, Mo.
Anderson Engr. Co., 225 Bent
St., Cambridge 41, Mass.
Athey Products Corp., 5631
West 65th St., Chicago
38, Ill.
Atlas Conveyor Co., 15th St.,
Clintonville, Wis.
Austin-Western Co., Auro-
ra, Ill.
Barber-Greene Co., 631 W.
Park Ave., Aurora, Ill. 16
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland, Ohio
Frank I. Blatt Sales Co.,
Inc., Rattlesnake, Fla.
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Fran-
cisco 24, Calif.
Bonded Scale Co., 41 Bell-
view Ave., Columbus 7,
Ohio 189
The Burch Corp., Crestline,
Ohio
Chain Belt Co., 1649 W. Bruce
St., Milwaukee 4, Wis.
Champion Line Machinery
Co., 95 Schuyler Ave., No.
Arlington, N. J.
The Columbus Conveyor Co.,
869 W. Goodale St., Colum-
bus, Ohio
Concrete Transport Mixer
Co., 650 Rosedale Ave., St.
Louis 12, Mo. 191
Continental Gin Co., Indus-
trial Div., 4500 5th Ave.
So., Birmingham, Ala. 136
Conveyor Co., Inc., 3260 E.
Slauson Ave., Los Angeles
11, Calif.
Coyle & Roth Co., Inc., 3024
S. E. 4th St., Minneapolis
14, Minn.
Denver Equipment Co., P.O.
Box 5268, Denver 17,
Colo. 146
Diamond Iron Works, Inc.,
1728 No. 2nd St., Minne-
apolis 11, Minn.
Dodge Manufacturing Corp.,
500 S. Union St., Misha-
waka, Ind.
Eagle Crusher Co., Inc., 900
Harding Way, E. Gallon,
Ohio
The J. B. Ehrsam & Sons
Mfg. Co., Enterprise, Kan.
Equipment Engineering Co.,
St. Charles, Ill.
Fabricating & Machinery,
Inc., 3226 5th Ave. S.,
Birmingham 5, Ala. 196
A. B. Farquhar Co., Ltd.
(Portable Machinery Div.),
N. Duke St., York, Penn.

DIRECTORY

Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Fleming Mfg. Co., Inc., 4985 Flyer Ave., St. Louis 9, Mo. 190
 General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
 F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla. 165
 Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
 Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia, Penn.
 Goodman Manufacturing Co., 4834 S. Halsted, Chicago 9, Ill.
 Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla. 189
 Greenville Mfg. Works, Greenville, Ohio
 Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 George Haiss Mfg. Co., Inc., Park Ave., & 143rd St., New York 51, N. Y.
 The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 R. R. Howell Co., P.O. Box 261, Minneapolis, Minn.
 Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia. 67
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 C. S. Johnson Co., Champaign, Ill.
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., Bldg., New York 16, N. Y. 15
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
 Link-Belt Co., 30 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Eng. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 The Manhattan Rubber Mfg. Co., Division of Raybestos Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
 E. F. Marsh Eng. Co., 4030 Chouteau Ave., St. Louis 10, Mo.
 Material Movement Industries, 310 S. Michigan Ave., Chicago 4, Ill.
 Mathews Conveyor Co., 10th St., Ellwood City, Penn.
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
 Multiplex Concrete Mch. Co., Elmore, Ohio 163
 D. J. Murray Mfg. Co., Wausau, Wis.
 National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
 N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J.
 New Holland Machine Co., 100 Franklin St., New Holland, Penn. 154
 Noble Co., 1860 7th St., Oakland 7, Calif.
 Pioneer Engr. Wks., Inc., 1515 Central Ave., Minneapolis 13, Minn.
 W. A. Riddell Corp., Warren St., Bucyrus, Ohio
 Robins Conveyors Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 Screw Conveyor Corp., Hammond, Ind.
 Smith Engr. Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 10, 11

Sprout, Waldron, Muncy, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
 Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
 Universal Engineering Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
 Webster Manufacturing, Inc., Tiffin, Ohio
 Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y. 20
 Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

CONVEYORS, Drag

American Manganese Steel Division, 377 E. 14th St., Chicago Heights, Ill. 45
 Atlas Conveyor Co., 15th St., Clintonville, Wis.
 Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Beaumont Birch Co., 1512 Race St., Philadelphia, Penn.
 Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Bonded Scale Co., 41 Bellview, Columbus 7, Ohio. 189
 The Burch Corp., Crestline, Ohio
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Continental Gin Co., Industrial Div., 4500 5th Ave., So. Birmingham, Ala. 136
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
 Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga. 163, 191
 Denver Equipment Co., P.O. Box 568, Denver 17, Colo. 146
 Diamond Iron Wks., and the Mahr Mfg. Co., Div., 1800 N. 2nd St., Minneapolis 11, Minn.
 The Ducon Co., 259 Norwin Ave., Brooklyn 22, N. Y.
 Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Ore.
 A. B. Farquhar Co., Ltd. (Portable Mch. Div.), N. Duke St., York, Penn.
 Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
 Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
 Greenville Mfg. Works, Greenville, Ohio
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 George Haiss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
 Helmick Foundry-Mach. Co., Lock Drawer 71, Fairmont, W. Va.
 Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.

Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Engineering Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 E. F. Marsh Eng. Co., 4030 Chouteau Ave., St. Louis 10, Mo.
 Mathews Conveyor Co., 10th St., Ellwood City, Penn.
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 D. J. Murray Mfg. Co., Wausau, Wis.
 National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
 New Holland Machine Co., 100 Franklin St., New Holland, Penn. 154
 Robins Conveyors, Inc. (Div. of Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
 Sprout, Waldron, Muncy, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
 Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
 Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.
 Webster Manufacturing, Inc., Tiffin, Ohio
 Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

CONVEYORS, Overhead Traveling

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Bonded Scale Co., 41 Bellview Ave., Cleveland 7, Ohio 189
 Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 The Cleveland Crane & Engineering Co., Wickliffe, Ohio
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 A. B. Farquhar Co., Ltd. (Portable Machinery Div.), N. Duke St., York, Penn.
 General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
 Gifford-Wood Co., Hudson, N. Y.
 Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 15
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 Mathews Conveyor Co., 10th St., Ellwood City, Penn.
 Pioneer Engr. Wks., Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
 Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

CONVEYORS, Pan

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49
 Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 46
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Continental Gin Co., Industrial Div., 4500 5th Ave., So. Birmingham, Ala. 136
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles, Calif.
 General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
 Gifford-Wood Co., Hudson, N. Y.
 Iowa Mfg. Co., 916-16th St., N.E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y. 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
 Link-Belt Co., 30 W. Pershing Rd., Chicago 9, Ill.
 Lippmann Eng. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 E. F. Marsh Eng. Co., 4030 Chouteau Ave., St. Louis 10, Mo.
 Mathews Conveyor Co., 10th St., Ellwood City, Penn.
 McNally - Pittsburgh Mfg. Corp., Pittsburgh, Kan.
 Morrow Mfg. Co., 722 East Tenth St., Wellston, Ohio
 National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
 Pioneer Engr. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Webster Manufacturing, Inc., Tiffin, Ohio

CONVEYORS, Pneumatic (See Air Conveyors)

CONVEYORS, Portable

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 Anderson Engr. Co., 19-21 Charles St., Cambridge 41, Mass.
 Atlas Conveyor Co., 15th St., Clintonville, Wis.
 Austin-Western Co., Aurora, Ill.
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Bonded Scale Co., 41 Bellview Ave., Columbus 7, Ohio
 Brooks Equip. & Mfg. Co., 408 Davenport Rd., Knoxville 3, Tenn.
 The Burch Corp., Crestline, Ohio
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles, 11, Calif.

DIRECTORY

Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Eagle Crusher Co., Inc., 900 Harding Way, East Galion, Ohio
 Equipment Engineering Co., St. Charles, Ill.
 A. B. Farquhar Co., Ltd. (Portable Machinery Div.) N. Duke St., York, Penn.
 General Conveyor & Mfg. Co., Inc., 3601 Salena St., St. Louis, Mo.
 Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
 George Halss Mfg. Co., Inc., Park Ave. & 143rd St., New York 51, N. Y.
 Hercules Steel Products Co., Gallion, Ohio
 Hyster Co., 2902 N.E. Clackamas St., Portland 8, Oregon
 Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y.
 Lewistown Fdy. & Machine Co., 16 Elizabeth, Lewistown, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
 Lippmann Eng. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
 Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
 Material Movement Industries, 310 S. Michigan Ave., Chicago 4, Ill.
 Mathews Conveyor Co., 10th St., Ellwood City, Penn.
 N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J.
 New Holland Mfg. Co., Mountville, Penn.
 Noble Co., 1860 7th St., Oakland 7, Calif.
 Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Robins Conveyors, Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 Smith Engineering Wks., 532 E. Capitol Dr., Milwaukee 12, Wis.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
 Universal Engineering Corp., 625 C Ave., W., Cedar Rapids, Iowa
 Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

CONVEYORS, Screw

Allen Cone & Mach'y. Corp., 120 Broadway, New York 5, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
 Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
 Rodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Brady Conveyors Corp., Chicago, Ill.
 L. Burmeister Co., 4535 W. Mitchell St., Milwaukee 4, Wis.
 Butler Bin Co., Waukesha, Wis.

Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
 Chicago Steel Foundry Co., 3770 S. Kedzie Ave., Chicago 32, Ill.
 The Columbus Conveyor Co., 869 W. Goodale St., Columbus, Ohio
 Continental Gin Co., Industrial Div., 4500 5th Ave. So., Birmingham, Ala.
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Denver Equipment Co., P.O. Box 5268, Denver 17, Colo.
 Eagle Iron Wks., 129 Holcomb Ave., Des Moines, Iowa
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans.
 General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
 Gifford-Wood Co., Hudson, N. Y.
 The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
 C. S. Johnson Co., P.O. Box 71, Champaign, Ill.
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y.
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
 Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.
 Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.
 Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 The McNally-Pittsburg Mfg. Corp., Pittsburg, Kan.
 Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
 D. J. Murray Mfg. Co., Wausau, Wis.
 Noble Co., 1860 7th St., Oakland 7, Calif.
 Screw Conveyor Corp., 700 Hoffman St., Hammond, Ind.
 Sprout, Waldron, Muncy, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass.
 Webster Manufacturing, Inc., Tiffin, Ohio
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

CONVEYORS, Vibrating, Electric

Ajax Flexible Coupling Co., 116 Portage Rd., Westfield, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
 Bonded Scale Co., 41 Bellview, Columbus 7, Ohio
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
 Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill.
 Robins Conveyors, Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
 Syntroco, 450 Lexington Ave., Homer City, Penn.

CONVEYORS, Weighing

Bonded Scale Co., 41 Bellview, Columbus 7, Ohio

Builders-Providence, Inc., 9 Coddling St., Providence 1, R. I.
 Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Hardinge Co., Inc., 240 Arch St., York, Penn.
 Howe Scale Co., Rutland, Vt.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
 Mathews Conveyor Co., 10th St., Ellwood City, Penn.
 Merrick Scale Mfg. Co., 180 Autumn St., Passaic, N. J.
 Richardson Scale Co., Clifton, N. J.
 Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
 Schaffer Poldometer Co., 2828 Smallman St., Pittsburgh 22, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
 Syntroco, 450 Lexington Ave., Homer City, Penn.
 Toledo Scale Co., Telegraph Rd., Toledo 12, Ohio
 The Yale & Towne Mfg. Co., 4530 Tascony St., Philadelphia 24, Penn.

COOLERS, Cement

The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Fuller Co., Fuller Bldg., Catasauqua, Penn.
 Hardinge Co., Inc., 240 Arch St., York, Penn.
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y.
 Manitowoc Engineering Works, Manitowoc, Wis.
 The Northern Blower Co., 607 Barborton Ave., Cleveland 2, Ohio
 F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y.
 Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

COOLERS, Cement Clinker, Lime, Etc., Air Quenching, Rotary

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
 C. O. Bartlett & Snow Co., 6250 Harvard Ave., Cleveland, Ohio
 The Bonnot Co., Mulberry Rd. S.E., Canton, Ohio
 Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
 L. R. Christie Co., 17 E. 42nd St., New York, N. Y.
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Eternac Co., 203 Continental Bank Bldg., Salt Lake City, Utah
 Fuller Co., Fuller Bldg., Catasauqua, Penn.
 Hardinge Co., Inc., 240 Arch St., York, Penn.
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
 McGann Mfg. Co., P. O. Box 1187, York, Penn.
 Manitowoc Eng. Works, Manitowoc, Wis.
 Nordberg Mfg. Co., 3083 S. Chase St., Milwaukee 7, Wis.
 The Northern Blower Co., 607 Barborton Ave., Cleveland 2, Ohio
 Ruggles-Coles Eng. Co., 122 E. 42nd St., New York, N. Y.
 F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y.

Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

CORN CRIB BLOCK AND TILE MACHINES, Concrete

Besser Mfg. Co., Alpena, Mich.
 Miles Mfg. Co., 515-7 Hupp Ave., Jackson, Mich.
 Multiplex Concrete Machinery Co., Elmore, Ohio
 Stearns Mfg. Co., Inc., Adrian, Mich.

CORRECTING BASINS, Slurry, Etc.

The Dorr Co., Inc., 570 Lexington Ave., New York 22, N. Y.
 F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y.

COUPLINGS, Flexible (See Flexible Couplings)

COUPLINGS, Hose (See Hose Fittings)

COUPLINGS, Pipe, Shaft, etc.

The American Rolling Mill Co., 703 Curtis Street, Middletown, Ohio
 Continental Gin Co., Industrial Div., 4500 5th Ave. So., Birmingham, Ala.
 Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
 Dresser Mfg. Div., Dresser Industries, Inc., 41 Fisher Ave., Bradford, Penn.
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans.
 Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Penn.
 The Flori Pipe Co., 629 E. Red Bud, St. Louis, Mo.
 Knox Mfg. Co., 818 Cherry St., Philadelphia 7, Penn.
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 T. B. Wood's Sons Co., Fifth Ave., Chambersburg, Penn.

COUPLINGS, Shaft, Flexible Shaft

Ajax Flexible Coupling Co., 2 English St., Westfield, N. Y.
 American Flexible Couplings Co., Div. of J. A. Zurn Mfg. Co., 1801 Pittsburgh Ave., Erie, Penn.
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
 Continental Gin Co., Industrial Div., 4500 5th Ave. So., Birmingham, Ala.
 Crocker-Wheeler Electric Mfg. Co., Div. of Joshua Hendy Iron Wks., Ampere, N. J.
 De Laval Steam Turbine Co., Trenton, N. J.
 Diamond Chain & Mfg. Co., 402 Kentucky Ave., Dept. 520, Indianapolis, Ind.
 Diamond Iron Works, Inc., and The Mahr Mfg. Co., Div., 1800 N. 2nd St., Minneapolis 11, Minn.
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans.
 Farrell-Pittsburgh Co., Inc., 25 Main St., Ansonia, Conn.

DIRECTORY

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 53
W. A. Jones Fdy. & Machine Co., 4401 Roosevelt Rd., Chicago 34, Ill.
Kent Machine Co., Cuyahoga Falls, Ohio 187
Koppers Co., Inc., Koppers Building, Pittsburgh 19, Pa.
Lovejoy Flexible Coupling Co., 5037 W. Lake St., Chicago 44, Ill.
Link-Belt Co., 2045 W. Huntington Park Ave., Philadelphia 40, Penn. 1
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Prater Pulverizer Co., 1829 S. 65th Ave., Chicago 50, Ill.
Winfield H. Smith, Inc., 1000 Rockland Ave., Springfield, Erie County, N. Y.
Sprout, Waldron & Co., Muncy, Penn.
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Stow Mfg. Co., Inc., 443 State St., Binghamton, N. Y.
T. B. Wood's Sons Co., Fifth Ave., Chambersburg, Penn.
Victaulic Co. of America, 30 Rockefeller Plaza, New York 20, N. Y.
J. A. Zurn Mfg. Co., 1801 Pittsburgh Ave., Erie, Penn.

CRANE, Boom, Cable Stabilizer

Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 158
Industrial Brownhoist Corp., 135 Washington, Bay City, Mich.
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
McCaffrey - Ruddock Tagline Corp., 2121 E. 25th St., Los Angeles, Calif.
Mixermobile Manufacturers, 6855 N.E. Halsey, Portland 16, Oregon 200
Pacific Car & Foundry Co., 4th & Factory St., Renton, Wash.

CRANES (Crawler, Locomotive, Truck-Mounted); Diesel, Diesel Electric, Electric, Gasoline

American Hoist & Derrick Co., 63 South Robert St., St. Paul 1, Minn. 153
Austin-Western Co., Aurora, Ill.
The Baker-Raulang Co., 2168 W. 25th St., Cleveland 13, Ohio
Bay City Shovels, Inc., Bay City, Mich.
The Browning Crane & Shovel Co., 161st & Waterloo Rd., Cleveland 10, Ohio
Bucyrus-Erie Co., South Milwaukee, Wis. 4th Cover
The Byers Machine Co., Ravenna, Ohio
Clyde Iron Works, Inc., 29th Ave., West & Michigan Sts., Duluth 1, Minn.
Detroit Hoist & Machine Co., 8201 Morrow St., Detroit 11, Mich.
General Excavator Co., Cheney St., Marion, Ohio 62
Hanson Clutch & Mch. Co., Wall & Miami Sts., Tiffin 15, Ohio
Harnischfeger Corp., 4400 W. National, Milwaukee 14, Wis. 145, 158
Hyster Co., 2938 N. E. Clackamas, Portland 8, Ore.
Gar Wood Industries, 7924 Riopelle St., Detroit 11, Mich.
Industrial Brownhoist Corp., 135 Washington St., Bay City, Mich.
Insley Mfg. Co., 801 N. Olney St., Indianapolis, Ind.
Keystone Driller Co., 20th St. & 8th Ave., Beaver Falls, Penn.

Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
R. G. Le Tourneau, Inc., 2301 N. Adams, Peoria 3, Ill.
Lima Locomotive Wks., Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
Manitowoc Engr. Wks., Manitowoc, Wis. 42
The Marion Power Shovel Co., W. Center St., Marion, Ohio
Michigan Power Shovel Co., 2nd & Miller Blvd., Benton Harbor, Mich.
Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
Northwest Engr. Co., 28 E. Jackson Blvd., Chicago 4, Ill. 5
Ohio Locomotive Crane Co., Bucyrus, Ohio
Orton Crane & Shovel Co., 608 S. Dearborn St., Chicago, Ill.
The Osgood Co., Marion, Ohio

"Quick-Way" Truck Shovel Co., P. O. Box 1800, Denver, Colo.
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Spears - Wells Mch. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
The Thew Shovel Co., 1374 E. 28th St., Lorain, Ohio
Unit Crane & Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis. 28

CRANES, Hammer Head, Ship, etc.

American Hoist & Derrick Co., 63 S. Robert St., St. Paul, Minn. 153
Clyde Iron Works, Inc., 29th Ave. W., & Michigan St., Duluth 1, Minn.
Dobble Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
Dravo Corp., Neville Island, Pittsburgh 25, Penn.
Harnischfeger Corp., 4400 W. National, Milwaukee, Wis. 145, 158
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
McKernan-Terry Corp., 15 Park Row, New York 7, N. Y.
The Marion Power Shovel Co., W. Center St., Marion, Ohio
Northwest Engineering Co., 28 E. Jackson Blvd., Chicago 4, Ill. 5
The Wellman Engineering Co., 7000 Central Ave., Cleveland 4, Ohio 158
Western Gear Works, 417 Ninth South, Seattle 4, Wash.

CRANES, Overhead Bridge

American Hoist & Derrick Co., 63 S. Robert St., St. Paul, Minn. 153
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
Chisholm-Moore Hoist Corp., Fremont Ave., Tonawanda, N. Y.
The Cleveland Crane & Engr. Co., Wickliffe, Ohio
Columbus McKinnon Chain Corp., Tonawanda, N. Y.
Tae Conco Engr. Wks (Div. of H. D. Conkey Co.), 1501 West Washington Rd., Mendota, Ill.
Curtis Pneumatic Machy., Inc., 1988 Klenlen Ave., St. Louis, Mo.
Detroit Hoist & Machine Co., 8214 Morrow Ave., Detroit 11, Mich.
Dravo Corp., Neville Island, Pittsburgh 25, Penn.

Downs Crane & Hoist Co., 540 W. Vernon Ave., Los Angeles 37, Calif.
Electro Lift, Inc., 30 Church St., New York 7, N. Y.
Erie Steel Construction Co., Geist Road and NKP Railroad, Erie, Penn. 192
Ford Chain Block Div., American Chain & Cable Co., 2nd & Diamond Sts., Philadelphia 25, Penn. 3rd Cov.
Harnischfeger Corp., 4400 W. National, Milwaukee 14, Wis. 145, 158
Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.
McGann Mfg. Co., Inc., 1187, York, Penn.
Pacific Car & Fdy. Co., 4th and Factory St., Renton, Wash.
Joseph T. Ryerson & Son, Inc., 16th & Rockwell St., Chicago, Ill. 6
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
Wright Mfg. Div., American Chain & Cable Co., York, Penn. 3rd Cover

CRANES, Tractor

Allis-Chalmers Tractor Div., 1126 S. 70th St., Milwaukee, Wis. 13
American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Ind.
Austin-Western Co., Aurora, Ill.
The Baker-Raulang Co., 2168 W. 25th St., Cleveland 13, Ohio
The Browning Crane & Shovel Co., 16226 Waterloo Rd., N.E., Cleveland, Ohio
Cleveland Tractor Co., 19300 Euclid Ave., Cleveland 17, Ohio
The Elwell Parker Electric Co., 4205 St. Clair Ave., Cleveland 14, Ohio
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
The General Excavator Co., Cheney St., Marion, Ohio 62
The Frank G. Hough Co., E. Sunnyside Ave., Libertyville, Ill.
Hughes - Keenan Co., P.O. 621 Newman St., Mansfield, Ohio
Hyster Co., 2902 N. E. Clackamas Street, Portland 8, Oregon
Insley Mfg. Co., 801 N. Olney St., Indianapolis, Ind.
R. G. Le Tourneau, Inc., 2301 N. Adams, Peoria 3, Ill.
Lima Locomotive Wks., Inc., Shovel & Crane Division, 1108 National Bank Bldg., Lima, Ohio
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
Manitowoc Engr. Works, Manitowoc, Wis. 42
Minneapolis-Moline Power Implement Co., Box 1050, Minneapolis 1, Minn.
Northwest Engr. Co., 28 E. Jackson Blvd., Chicago 4, Ill. 5
The Osgood Co., Cheney St., Marion, Ohio 62
Pacific Car & Fdy. Co., Factory St., Renton, Wash.
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Southwest Welding & Mfg. Co., 3201 W. Mission Rd., Alhambra, Calif.
Trackson Co., Milwaukee 1, Wis. 42
Unit Crane & Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis. 29

CRAWLER ATTACHMENTS

Allied Steel Products, Inc., 1721 NBC Bldg., Cleveland 14, Ohio
American Manganese Steel Div. of American Brake Shoe Co., 389 E. 14th St., Chicago Heights, Ill. 45

Athey Truss Wheel Co., 5631 W. 65th St., Chicago 38, Ill.
Caterpillar Tractor Co., W. Washington, Peoria 8, Ill.
The General Excavator Co., Cheney St., Marion, Ohio 62
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
Kensington Steel Co., 505 Kensington Ave., Chicago, Ill.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
Manitowoc Engr. Works, Manitowoc, Wis. 42
Michigan Power Shovel Co., Second & Miller Blvd., Benton Harbor, Mich.
The Osgood Co., Cheney St., Marion, Ohio 62
Pacific Car & Fdy. Co., 4th and Factory St., Renton, Wash.

CRIBBING FORMS

Price Bros. Co., Box 825, Dayton, Ohio

CRIMPERS, BLASTING CAP (See Blasting Supplies)

CRUSHED STONE PLANTS Complete

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Austin-Western Co., Aurora, Ill.
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 1, Calif.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Dixie Machinery Mfg. Co., 4200 Goodfellow, St. Louis 20, Mo. 47
Eagle Crusher Co., Inc., 900 Harding Way, East, Galion, Ohio
J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 158
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
Grundler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Iowa
Kennedy-Van Saun Mfg. Co. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 14, 15
Fred T. Kern Co., P.O. Box 2057, Milwaukee 1, Wis.
Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
Maddox Foundry & Machine Works, Archer, Fla.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
New Holland Mfg. Co., Mountville, Penn. 154
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
Pioneer Engr. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
Smith Eng. Works, 532 E. Capitol Drive, Milwaukee 12, Wis. 11
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
Traylor Engr. & Mfg. Co., Tenth & Harrison Sts., Allentown, Penn. 7
Universal Engr. Corp., 625 C Ave. W., Cedar Rapids, Iowa

DIRECTORY

Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn. 62
 Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27
 Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

CRUSHER PARTS

Allied Steel Products, Inc., 1721 NBC Bldg., Cleveland 14, Ohio
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Alloy Steel & Metals Co., 1862 E. 55th St., Los Angeles, Calif.
 American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
 American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo. 58
 Austin-Western Co., Aurora, Ill.

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
 Buffalo Hammer Mill Corp., 27 Washington St., Buffalo, N. Y.
 Farrel-Birmingham Co., Inc., Ansonia, Conn.
 C. O. Bartlett & Snow Co., 6194 Harvard Ave., Cleveland, Ohio
 Birdsboro Steel Foundry & Machine Co., 1941 Furnace St., Birdsboro, Penn.
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.

Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Dixie Machinery Mfg. Co., 4200 Goodfellow, St. Louis 20, Mo. 47
 Eagle Crusher Co., Inc., 900 Harding Way East, Gallon, Ohio
 Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Ore.
 The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
 Gilson Bros. Co., Fredonia, Wis. 154

Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York, N. Y. 14, 15
 Kensington Steel Co., 505 Kensington Ave., Chicago, Ill.

Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis. 139
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Maddox Foundry & Machine Works, Archer, Fla.
 Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill. 154
 New Holland Mfg. Co., Mountville, Penn. 22
 Nordberg Mfg. Co., 3073 S. Chase Avenue, Milwaukee, Wis. 22

Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia, Penn. 72
 Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
 Pioneer Engr. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.

Smith Engr. Wks., 532 E. Capitol Drive, Milwaukee 12, Wis. 11
 Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
 Stroh Process Steel Co., 1428 High St., Pittsburgh 12, Penn.
 Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa. 64
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
 Western Machy. Co., 760 Folsom Street, San Francisco, Calif.

Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27
 Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

CRUSHERS, Gyratory

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Alloy Steel & Metals Co., 1862 E. 55th St., Los Angeles, Calif.
 Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
 C. G. Buchanan Co., Inc., 1501 Broadway, New York, N. Y.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.

Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 6, N. Y. 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
 New Holland Machine Co., 100 Franklin St., New Holland, Penn. 154
 Nordberg Mfg. Co., 3073 S. Chase Ave., Milwaukee 7, Wis. 22

W. A. Riddell Corp., Bucyrus, Ohio
 Robins Conveyors, Inc. (Div. of Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis. 11
 The Stearns-Roger Mfg. Co., 1718-22 California St., Denver 2, Colo.
 Straub Mfg. Co., 507 Chestnut St., Oakland 17, Calif. 28

Sturtevant Mill Co., 41 Harrison Sq., Boston 22, Mass. 2nd Cover
 Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
 Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
 Western Mch. Co., 760 Folsom Street, San Francisco, Calif.

CRUSHERS, Hammer, Impact

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo. 58
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio.
 The Bonnot Co., Mulberry Rd., S.E., Canton, Ohio
 Brooks Equipment & Mfg. Co., 408 Davenport Road, Knoxville, Tenn.
 Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.

Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Dixie Machinery Mfg. Co., 4200 Goodfellow, St. Louis 20, Mo. 47
 Eagle Crusher Co., Inc., 900 Harding Way East, Gallon, Ohio
 Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
 Gilson Bros. Co., Fredonia, Wis. 154
 Gruendler Crusher & Pulv. Co., 2915-17 N. Market St., St. Louis, Mo. 64
 Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 6, N. Y. 14, 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill. 15
 Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
 Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis. 139

McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Multiplex Concrete Machinery Co., Elmore, Ohio. 163
 D. J. Murray Mfg. Co., Wausau, Wis.
 New Holland Mfg. Co., Mountville, Penn. 154
 Nordberg Mfg. Co., 3073 S. Chase Ave., Milwaukee 7, Wis. 22
 Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
 Prater Pulverizer Co., 1825 S. 55th Ave., Chicago 50, Ill.

Raymond Pulverizer Div., Combustion Engr. Co., Inc., 1319 N. Branch St., Chicago 22, Ill. 61
 W. A. Riddell Corp., Bucyrus, Ohio.
 Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
 F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y. 68, 71
 Stearns Mfg. Co., Inc., Adrian, Mich.
 Stedman's Fdy. & Machine Wks., Aurora, Ind.

Sturtevant Mill Co., 41 Harrison Sq., Boston 22, Mass. 2nd Cover
 Universal Engr. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Vulcan Iron Wks., 700 S. Main Street, Wilkes-Barre, Penn.
 Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27

CRUSHERS, Jaw

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Alloy Steel & Metals Co., 1862 E. 55th St., Los Angeles 11, Calif.
 Austin-Western Co., Aurora, Ill.
 Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16
 Birdsboro Steel Foundry & Machine Co., 1941 Furnace St., Birdsboro, Penn.
 Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
 C. G. Buchanan Co., Inc., 1501 Broadway, New York, N. Y.
 Colorado Iron Works Co., 1624 17th St., Denver 2, Colo.
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
 Denver Equipment Co., P. O. Box 5268, Denver 17, Colo. 146
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.

Eagle Crusher Co., Inc., 900 Harding Way East, Gallon, Ohio
 Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
 Gilson Bros. Co., Fredonia, Wis. 154
 Gruendler Crusher & Pulv. Co., 2915-17 N. Market St., St. Louis, Mo. 64
 Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 6, N. Y. 14, 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill. 15
 Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
 Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis. 139

McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Maddox Foundry & Machine Works, Archer, Fla.
 Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill. 154
 New Holland Mfg. Co., Mountville, Penn. 22
 Nordberg Mfg. Co., 3073 S. Chase Avenue, Milwaukee, Wis. 22
 Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia, Penn. 72
 Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
 Pioneer Engr. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.

Smith Engr. Wks., 532 E. Capitol Drive, Milwaukee 12, Wis. 11
 Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
 Stroh Process Steel Co., 1428 High Street, Pittsburgh 12, Penn.
 Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27

Eagle Crusher Co., Inc., 900 Harding Way East, Gallon, Ohio
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 158
 The Elmcro Corp., P.O. Box 300, Salt Lake City 8, Utah
 Farrel-Birmingham Co., Inc., Ansonia, Conn.
 Good Roads Machinery Corp., Kennett Square, Penn.
 Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64

Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y. 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Kent Mill Co., 10 Rapelye Street, Brooklyn 31, New York, N. Y.
 Lewistown Foundry & Machine Co., 16 Elizabeth, Lewistown, Penn.
 Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis. 139

McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Morse Bros. Machinery Co., P. O. Box 1708, Denver 1, Colo.
 Nordberg Mfg. Co., 3073 S. Chase Ave., Milwaukee 7, Wis. 22
 Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia, Penn. 72
 Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 W. A. Riddell Corp., Bucyrus, Ohio
 Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
 Smith Engr. Works, 532 E. Capitol Drive, Milwaukee 12, Wis. 11
 Stearns Mfg. Co., Inc., Adrian, Mich.

The Stearns-Roger Mfg. Co., 1718-1722 California St., Denver 2, Colo.
 Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28
 Stroh Process Steel Co., 1428 High Street, Pittsburgh 12, Penn.
 Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass. 2nd Cover
 Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287

The Webb Corp., 402 E. Broadway, Webb City, Mo.
 Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

CRUSHERS, Laboratory

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo. 58
 Farrel-Birmingham Co., Inc., Ansonia, Conn.
 Birdsboro Steel Foundry & Machine Co., 1941 Furnace St., Birdsboro, Penn.
 Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
 Burrell Technical Supply Co., 1936-1942 Fifth Ave., Pittsburgh, Penn.
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.

CRUSHERS, Laboratory

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo. 58
 Farrel-Birmingham Co., Inc., Ansonia, Conn.
 Birdsboro Steel Foundry & Machine Co., 1941 Furnace St., Birdsboro, Penn.
 Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
 Burrell Technical Supply Co., 1936-1942 Fifth Ave., Pittsburgh, Penn.
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.

DIRECTORY

The Denver Fire Clay Co., P. O. Box 5510, Denver 17, Colo.
Denver Equipment Co., P. O. Box 526, Denver 17, Colo. 146
 Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Penn.
 The Galigher Co., 48 South Second East St., Salt Lake City 1, Utah 140
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y. 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 The Mine & Smelter Supply P. O. Box 5270, Terminal Station, Denver 17, Colo.
 Morse Bros. Machinery Co., P. O. Box 1708, Denver 1, Colo.
 Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
 The Stearns-Roger Mfg. Co., 1718-1722 California St., Denver 2, Colo.
 Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
 Sturtevant Mill Co., 41 Harrison Squ., Dorchester, Boston 22, Mass. 2nd Cover
 Traylor Eng. & Mfg. Co., Tenth & Harrison Sts., Allentown, Penn. 7
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Western Mch. Co., 760 Folsom St., San Francisco, Calif.
 Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27

CRUSHERS, Ring

American Pulverizer Co., 1249 Mackind Ave., St. Louis 10, Mo. 58
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
 Dixie Machinery Mfg. Co., 4200 Goodfellow, St. Louis 20, Mo. 47
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y. 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Kent Mill Co., 10 Rapelye St., Brooklyn, N. Y.
 Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
 Robins Conveyors Inc., (Div. of Hewitt-Robins Inc.), Passaic Ave., Passaic, N. J.
 Stedman's Fdy. & Machine Wks., Aurora, Ind.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass. 2nd Cover
 Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27

CRUSHERS, Roll

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49
 Alloys Steel & Metals Co., 1862 E. 55th St., Los Angeles, Calif.
 American Pulverizer Co., 1249 Mackind Ave., St. Louis 10, Mo. 58

Austin-Western Co., Aurora, Ill.
 Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
 Farrel-Birmingham Co., Inc., Ansonia, Conn.
 C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio
 Birdsboro Steel Foundry & Machine Co., 1941 Furnace St., Birdsboro, Penn.
 Bonded Scale Co., 41 Bellview, Columbus 7, Ohio. 189
 The Bonnot Co., Mulberry Rd., S.E., Canton, Ohio
 C. G. Buchanan Co., Inc., 1501 Broadway, New York, N. Y.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Colorado Iron Works Co., 162-17th St., Denver 2, Colo.
 The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
 Denver Equipment Co., P.O.B. 5268, Denver 17, Colo. 146
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Eagle Iron Works, 129 Holcomb, Des Moines 4, Iowa
 The Elmco Corp., P.O. Box 300, Salt Lake City 8, Utah
 Greenville Mfg. Wks., Greenville, Ohio
 Groch Eng. Co., 628 W. 9th St., Los Angeles 15, Calif.
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 International Engineering Inc., 1145 Bolander Ave., Dayton 8, Ohio
 Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 53
 Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y. 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Maddox Foundry & Machine Wks., Archer, Fla.
 The Mine & Smelter Supply Co., P.O. Box 5270, Terminal Station, Denver 17, Colo.
 Multiplex Concrete Mch. Co., Elmore, Ohio 163
 New Holland Mfg. Co., Mountville, Penn. 160
 Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
 Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 W. A. Riddell Corp., 201 E. Warren, Bucyrus, Ohio
 Robins Conveyors Inc., (Div. Hewitt-Robins Inc.) 270 Passaic Ave., Passaic, N. J.
 Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
 Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 10, Wis. 11
 Stearns Mfg. Co., Inc., Adrian, Mich.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Stroh Process Steel Co., 1428 High St., Pittsburgh 12, Penn.
 Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass. 2nd Cover
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa

Vulcan Iron Works, 700 S. Main Street, Wilkes-Barre, Penn.
 The Webb Corp., 402 E. Broadway, Webb City, Mo.
 Webster Mfg. Co., Tiffin 16, Ohio
 Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27
 Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

CRUSHING AND SCREENING PLANTS, Portable

American Pulverizer Co., 1249 Mackind Ave., St. Louis 10, Mo. 58
 Austin-Western Co., Aurora, Ill.
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco, Calif.
 Bonded Scale Co., 41 Bellview, Columbus 7, Ohio. 189
 Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Eagle Crusher Co., Inc., 900 Harding Way, East, Gallon, Ohio
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 158
 Erie Steel Construction Co., Box 1031, Erie, Penn. 192
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y. 15
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Eng. Works, 4603 W. Mitchell St., Milwaukee, Wis.
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago, Ill.
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 New Holland Mfg. Co., Mountville, Penn. 154
 Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 Smith Engineering Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 11
 The Stearns-Roger Mfg. Co., 1720 Calif. St., Denver 2, Colo.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Strub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
 Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo. 27
 Wisconsin Foundry & Mach. Co., 23 E. Main St., Madison 1, Wis.

CULVERT PIPE MACHINERY & MOLDS, Concrete

Concrete Pipe Mch. Co., 9th & Division, Sioux City, Iowa
 Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
 Lock Joint Pipe Co., 150 Rutledge Ave., E. Orange, N. J.

Quinn Wire & Iron Wks., Boone, Iowa
 Universal Concrete Pipe Co., 297 S. High St., Columbus, Ohio

CUPOLAS, Rock Wool (See Rock Wool Cupolas and Equipment)

CURING COMPOUNDS, Concrete

American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio
 Dewey & Almy Chem. Co., 62 Whittemore Ave., Cambridge 40, Mass.
 E. I. DuPont de Nemours & Co., Inc., Nemours Bldg., Wilmington 58, Del. 64
 Harshaw Chemical Co., Cleveland, Ohio
 Haynes Products Co., 4007 Farnam St., Omaha, Neb.
 Michigan Alkali Corp., Ford Bldg., Detroit, Mich.
 L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
 Reardon Industries, 2837 Stanton Ave., Cincinnati 6, Ohio
 Solvay Sales Corp., 40 Rector St., New York 6, N. Y.

CUTTER-HEADS, Dredging

American Manganese Steel Div., 377 E. 15th St., Chicago Heights, Ill. 48
 American Steel Dredge Co., Inc., 2500 Taylor St., Ft. Wayne, Ind.
 Bucyrus-Erie Co., P. O. Box 56, South Milwaukee, Wis. 4th Cover
 Electric Steel Fdry., 2141 N.W. 25th Ave., Portland, Oregon
 Eagle Iron Works, 129 Holcomb Ave., Des Moines, Iowa 301
 The Frig. Switch & Mfg. Co., Carlisle, Penn. 150
 Georgia Iron Wks., 605 Twelfth St., Augusta, Ga.
 Greenville Mfg. Works, Greenville, Ohio
 Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Millville Iron Works, Inc., Sixth St. & Florence Ave., Millville, N. J.
 Morris Machine Works, Baldwinville, N. Y. 151
 Pettibone Mulliken Corp., 4719 W. Division St., Chicago 51, Ill.
 Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137

CUTTERS, Fuse (see Blasting Supplies)

CUTTING WHEELS, Abrasive for Concrete

The Carborundum Co., Niagara Falls, N. Y.
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
 Stone Machinery Co., Inc., Manlius, N. Y.

DEDUSTERS

The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 Pangborn Corp., 120 Pangborn Blvd., Hagerstown, Md.
 Parsons Eng. Corp., 2546 E. 79th St., Cleveland 4, Ohio
 Separations Eng. Corp., 110 E. 42nd St., New York 17, N. Y.
 The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, Ohio 135

DIRECTORY

DEHYDRATORS (see also Centrifuges, Thickeners, etc.)

Allen Cone & Machy. Corp., 120 Broadway, New York 5, N. Y.
 Bird Machine Co., S. Walpole, Mass.
 Centrifuge Mechanical Equipment, Inc., 95 River St., Hoboken, N. J.
 L. R. Christie Co., 17 East 42nd St., New York 17, N. Y.
 Denver Equipment Co., 1400 17th St., Denver, Colo. 146
 Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
 Eagle Iron Wks., 129 Holcomb Ave., Des Moines 4, Iowa 301
 Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
 Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill.
 F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
 Western Machinery Co., 760 Folsom St., San Francisco, Calif.

DERR CKS. Barge

American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn. 153
 American Steel Dredge Co., Inc., 2500 Taylor St., Ft. Wayne, Ind.
 Bethlehem Steel Co., Bethlehem, Penn. 65
 Clyde Iron Works Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.
 Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
 Dravo Corp., Neville Island, Pittsburgh 25, Penn.
 McKiernan - Terry Co., 505 Manor Ave., Harrison, N. J.
 Manitowoc Eng. Works, Manitowoc, Wis. 42
 Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
 Pacific Car & Fdry Co., Factory St., Renton, Wash.

DERRICKS, Stiff-Leg and Guy

American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn. 153
 Clyde Iron Works Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.
 Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
 Downs Crane & Hoist Co., 540 W. Vernon Ave., Los Angeles 37, Calif.
 Insley Mfg. Co., 801 N. Olney St., Indianapolis, Ind.
 McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
 Maddox Fdry. & Machine Wks., Archer, Fla.
 Morse Bros. Mch. Co., 1900 Broadway, Denver 1, Colo.
 Pacific Car & Fdry. Co., Factory St., Renton, Wash.
 The Sagen Derrick Co., 3101 W. Grand Ave., Chicago 22, Ill.
 Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
 Street Brothers Machine Co., 415 Times Bldg., Chattanooga 2, Tenn.

DETONATORS (see Blasting Caps, Blasting Supplies)

DEWATERING EQUIPMENT, Sand

Allen Cone & Mch. Corp., 120 Broadway, New York 5, N. Y.
 The Allen-Sherman-Hoff Co., 1435 Locust St., Philadelphia 2, Penn. 78
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Bonded Scale Co., 2176 S. Third St., Columbus 7, Ohio 189
 C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
 Colorado Iron Wks. Co., 1624 17th St., Denver 2, Colo.
 Deister Machine Co., 1933 E. Wayne St., Ft. Wayne 4, Ind. 149
 Denver Equipment Co., 1400 St., Denver 17, Colo. 146
 Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
 Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
 The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 Earle Iron Works, 129 Holcomb Ave., Des Moines 4, Iowa 301
 The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa 67
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York 16, N. Y. 14
 Fred T. Kern Co., P. O. Box 2057, Milwaukee 1, Wis.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Millville Iron Works, Inc., Sixth St. & Florence Ave., Millville, N. J.
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 New Holland Mfg. Co., Mountville, Penn. 154
 Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 Smith Engr. Works, 532 E. Capitol Dr., Milwaukee 12, Wis.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Western Mch. Co., 760 Folsom St., San Francisco, Calif.
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

DIAPHRAGMS, Pumps, Rubber

The American Rubber Mfg. Co., 1145 Park Ave., Oakland 8, Calif.
 Carlyle Rubber Co., Inc., 62 Park Place, New York City 7, N. Y.
 Ralph B. Carter Co., Markley-Carter Dust Collector Div., 196 Atlantic St., Hackensack, N. J.
 C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.

Construction Machinery Co., Glenwood & Vinton St., Waterloo, Iowa
 Continental Rubber Works, 1902 Liberty St., Erie, Penn.

Denver Equipment Co., P. O. Box 5166, Denver 17, Colo. 146
 The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
 The Gallagher Co., 48 South Second East St., Salt Lake City 1, Utah 140
 The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
 Goodall Rubber Co., 5 So. 36th St., Philadelphia 4, Penn.
 The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
 Greene, Tweed & Co., 4377 Bronx Blvd., New York 66, N. Y.
 Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 Hewitt Rubber of Buffalo, Div. Hewitt-Robins, Inc., 270 Kensington Ave., Buffalo 5, N. Y. 56
 Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
 Kadco Corp., 36-40 Eleventh St., Long Island City, N. Y. (Subsidiary of Complete Machinery & Equipment Co.)
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
 Novo Engine Co., 702 Porter St., Lansing, Mich.
 Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.
 Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn. 12
 Republic Rubber Division, Lee Rubber & Tire Corp., Youngstown, Ohio
 United States Rubber Co., 1230 6th Ave., New York 20, N. Y.
 Western Machinery Co., 760 Folsom St., San Francisco, Calif.

DIESEL ENGINES, Automotive

The Buda Co., 15428 Commercial Ave., Harvey, Ill.
 Caterpillar Tractor Co., W. Washington Peoria 8, Ill. 41
 Continental Motors Corp., Muskegon, Mich.
 The Cooper-Bessemer Corp., Sandusky St., Mt. Vernon, Ohio
 Cummins Engine Co., Columbus, Ind.
 Detroit Diesel Engine Div., 13400 W. Outer Drive, Detroit 23, Mich.
 Hercules Motors Corp., 201 11th St., S.E., Canton 2, Ohio
 Mack Trucks Inc., 350 Fifth Ave., New York 1, N. Y. 32
 R. H. Sheppard Co., Philadelphia St., Hanover, Penn.
 Waukesha Motor Co., P. O. Box 379, Waukesha, Wis.

DIESEL ENGINES, Stationary (Less than 100 h.p.)

Atlas Imperial Diesel Engine Co., 120 N. 14th St., Mattoon, Ill.
 Bolinders Co., Inc., 33 ReCTOR, New York 6, N. Y.
 The Buckeye Machine Co., 1000 E. O'Connor Ave., Lima, Ohio
 The Buda Co., 15428 Commercial Ave., Harvey, Ill.
 Caterpillar Tractor Co., Peoria 8, Ill. 41
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y. 44
 Climax Industries, Inc., 1812 S. 4th St., Clinton, Iowa
 Continental Motors Corp., Muskegon, Mich.

Continental Gin Co., Industrial Div., 4500 5th Ave. So., Birmingham, Ala. 136
 The Cooper-Bessemer Corp., Mt. Vernon, Ohio
 Cummins Engine Co., Columbus, Ind.
 Detroit Diesel Engine Div., 13400 W. Outer Drive, Detroit 23, Mich.
 Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 Hercules Motors Corp., 201 11th St., S.E., Canton 2, Ohio
 International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill. 23
 Lister-Blackstone Inc., 1706 S. 68, Milwaukee 14, Wis.
 Murphy Diesel Co., 5317 W. Burnham St., Milwaukee 14, Wis.
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 1, Wis. 22
 R. H. Sheppard Co., Philadelphia St., Hanover, Penn.
 Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y.
 Superior Engine Div. National Supply Co., Springfield, Ohio
 Van-Severin Machine Co., 1317 W. North Ave., Chicago 22, Ill.
 Waukesha Motor Co., P. O. Box 379, Waukesha, Wis.
 Weber Engine Co., 1101 Winchester, Kansas City, Mo.
 Witte Eng. Wks. Div. of Oil Well Supply Co., 1600 Oakland, Kansas City, Mo.

DIESEL ENGINES, Stationary (100 to 500 h.p.)

Atlas Imperial Diesel Engine Co., 120 N. 14th St., Mattoon, Ill.
 Bolinders Co., Inc., 33 ReCTOR, New York 6, N. Y.
 The Buckeye Machine Co., 1000 E. O'Connor Ave., Lima, Ohio
 The Buda Co., 15428 Commercial Ave., Harvey, Ill.
 Busch-Sulzer Bros. Diesel Engine Co., 3300 South 2nd St., St. Louis 18, Mo.
 Caterpillar Tractor Co., Peoria 8, Ill. 41
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y. 44
 Continental Gin Co., Industrial Div., 4500 5th Ave. So., Birmingham, Ala. 136
 Continental Motors Corp., Muskegon, Mich.
 The Cooper-Bessemer Corp., Mt. Vernon, Ohio
 Cummins Engine Co., Columbus, Ind.
 Detroit Diesel Engine Div., 13400 W. Outer Drive, Detroit 23, Mich.
 Enterprise Engine & Foundry Co., 18th & Florida St., San Francisco 10, Calif.
 Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 Hercules Motors Corp., 201 11th St., S.E., Canton 2, Ohio
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Murphy Diesel Co., 5317 W. Burnham St., Milwaukee 14, Wis.
 The National Supply Co., P. O. Box 899, Toledo, Ohio
 Nordberg Mfg. Co., 3083 S. Chase St., Milwaukee 7, Wis. 22
 Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y.
 Superior Engine Div. National Supply Co., 1401 Sheridan Ave., Springfield, Ohio
 Van-Severin Machine Co., 1317 W. North Ave., Chicago 22, Ill.
 Waukesha Motor Co., P. O. Box 379, Waukesha, Wis.

DIRECTORY

Wolverine Motor Wks., Inc.,
35 Union Ave., Bridge-
port 2, Conn.
Worthington Pump & Mch.
Corp., Harrison, N. J.

DIESEL ENGINES, Station- ary (500 to 1000 h.p.)

American Locomotive Co., 30
Church St., New York 8,
N. Y.
Atlas Imperial Diesel Engine
Co., 120 N. 14th St., Mat-
toon, Ill.
Bollinders Co., Inc., 33 Rec-
tor, New York 6, N. Y.
The Buckeye Machine Co.,
1000 E. O'Connor Ave.,
Lima, Ohio
Busch-Sulzer Bros. Diesel
Engine Co., 3300 S. 2nd
St., St. Louis 18, Mo.
Chicago Pneumatic Tool Co.,
6 E. 44th St., New York 17,
N. Y.
The Cooper-Bessemer Corp.,
Mt. Vernon, Ohio
Detroit Diesel Engr. Div.,
13400 W. Outer Drive, De-
troit 23, Mich.
Enterprise Engine & Fdy.
Co., 18th & Florida St.,
San Francisco 10, Calif.
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Joshua Hendy Iron Wks.,
Box 37, Sunnyvale, Calif.
Ingersoll-Rand Co., 11 Broad-
way, New York 4, N. Y.
Sterling Engine Co., 1270
Niagara St., Buffalo 13,
N. Y.
Superior Engine Div. Na-
tional Supply Co., 1401
Sheridan Ave., Springfield,
Ohio
Worthington Pump & Mch.
Corp., Harrison, N. J.

DIESEL ENGINES, Station- ary (Over 1000 h.p.)

American Locomotive Co., 30
Church St., New York 8,
N. Y.
Bollinders Co., Inc., 33 Rec-
tor, New York 6, N. Y.
Busch-Sulzer Bros. Diesel
Engine Co., 3300 S. 2nd St.,
St. Louis 18, Mo.
The Cooper-Bessemer Corp.,
Mt. Vernon, Ohio
Enterprise Engine & Fdy.
Co., 18th & Florida St.,
San Francisco 10, Calif.
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Ingersoll-Rand Co., 11 Broad-
way, New York 4, N. Y.
Nordberg Mfg. Co., 3073 S.
Chase Ave., Milwaukee 7,
Wis.
Superior Engine Div. Na-
tional Supply Co., 1401
Sheridan Ave., Springfield,
Ohio
Worthington Pump & Mch.
Corp., 744 Broad St., New-
ark 2, N. J.

DIESEL-GENERATOR SETS

Atlas Imperial Diesel Engine
Co., 120 N. 14th St., Mat-
toon, Ill.
Bollinders Co., Inc., 33 Rec-
tor, New York 6, N. Y.
The Buckeye Machine Co.,
1000 E. O'Connor Ave.,
Lima, Ohio
The Buda Co., 15428 Com-
mercial Ave., Harvey, Ill.
Busch-Sulzer Bros. Diesel
Engine Co., 3300 S. 2nd
St., St. Louis 18, Mo.
Caterpillar Tractor Co., Peo-
ria 8, Ill.
Chicago Pneumatic Tool Co.,
6 E. 44th St., New York 17,
N. Y.
Climax Industries, Inc., 1812
S. 4th St., Clinton, Iowa
The Cooper-Bessemer Corp.,
Mt. Vernon, Ohio
Crocker-Wheeler Electric
Mfg. Co., Div. of Joshua
Hendy Iron Works, Am-
pere, East Orange, N. J.

Cummins Engine Co., 5th &
Wilson Sts., Columbus,
Ind.

Detroit Diesel Engine Div.
General Motors Corp.,
13400 W. Outer Drive, De-
troit 23, Mich.
Enterprise Engine & Fdy.
Co., 18th & Florida Sts.,
San Francisco 10, Calif.
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Joshua Hendy Iron Wks.,
Box 37, Sunnyvale, Calif.
Ingersoll-Rand Co., 11 Broad-
way, New York 4, N. Y.
International Diesel Electric
Co., Inc., 13-02 44th Ave.,
Long Island City 1, N. Y.
Lister-Blackstone Inc., 1706
S. 68, Milwaukee 14, Wis.
Murphy Diesel Co., 5317 W.
Burnham St., Milwaukee
14, Wis.
Nordberg Mfg. Co., 3073 S.
Chase Ave., Milwaukee,
Wis.
Novo Engine Co., 702 Porter
St., Lansing, Mich.
Ransome Mch. Corp., 42
Thomas St., Dunellen,
N. J.
R. H. Sheppard Co., Phila-
delphia St., Hanover, Penn.
Spears-Weils Mch. Co., Inc.,
1832 W. 9th St., Oakland
7, Calif.
Sterling Engine Co., 1270
Niagara St., Buffalo 13,
N. Y.
Superior Engine Div. Na-
tional Supply Co., 1401
Sheridan Ave., Springfield,
Ohio
Waukesha Motor Co., P. O.
Box 379, Waukesha, Wis.
Witte Eng. Wks. Div. of
Oil Well Supply Co., 1600
Oakland, Kansas City, Mo.
Worthington Pump & Mch.
Corp., 37 Appleton St.,
Holyoke, Mass.

DIPPER TEETH AND PARTS

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill.
Audubon Wire Cloth Corp.,
(Subsidiary of Manganese
Steel Forge Co.), Rich-
mond St. & Castor Ave.,
Philadelphia, Penn.
Bucyrus-Erie Co., South Mil-
waukee, Wis.
Chicago Steel Fdy. Co., 3720
S. Kedzie Ave., Chicago 32,
Ill.
Electric Steel Fdy. Co., 2141
N. W. 25th Ave., Portland
10, Ore.
Farrell-Cheek Steel Co., P. O.
Box 721, Sandusky, Ohio
The Frog, Switch & Mfg.
Co., Carlisle, Penn.
Kensington Steel Co., 505
Kensington Ave., Chicago
28, Ill.
Maddox Fdy. & Machine
Wks., Archer, Fla.
Marion Power Shovel Co.,
W. Center St., Marion,
Ohio
Meckum Engr. Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
The Osgood Co., Marion,
Ohio
Pettibone Mulliken Corp.,
4710 W. Division St., Chi-
cago 51, Ill.
Stulz-Slicks Co., 134 Lafay-
ette St., Newark 5, N. J.
(Repainters)
Taylor-Wharton Iron and
Steel Co., High Bridge,
N. J.
Wisconsin Fdy. & Machine
Co., Madison, Wis.

DIPPERS, Dredge & Shovel

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill.
American Steel Dredge Co.,
Inc., 2500 Taylor St., Fort
Wayne, Ind.

Buckeye Traction Ditcher
Co., Crystal St., Findlay,
Ohio

Bucyrus-Erie Co., South Mil-
waukee, Wis.
Electric Steel Fdy. Co., 2141
N. W. 25th Ave., Portland
10, Ore.
The Frog, Switch & Mfg.
Co., Carlisle, Penn.
General Excavator Co.,
Cheney St., Marion, Ohio
Harnischfeger Corp., 4400 W.
National Ave., Milwaukee,
Wis.
Meckum Engr. Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
The Osgood Co., Marion,
Ohio
Pettibone Mulliken Corp.,
4710 W. Division St., Chi-
cago 51, Ill.
Taylor-Wharton Iron and
Steel Co., High Bridge,
N. J.

DISINTEGRATORS (see Crushers, Mills, Pulver- izers)

DITCHERS

Barber-Greene Co., 631 W.
Park Ave., Aurora, Ill.
Bay City Shovels, Inc., 2611
Center Ave., Bay City,
Mich.
Buckeye Traction Ditcher
Co., Crystal St., Findlay,
Ohio
Harnischfeger Corp., 4400 W.
National Ave., Milwaukee,
Wis.
Hyster Co., 2902 N. E. Clack-
amus St., Portland 8, Ore.
Keystone Driller Co., 2001-21
8th Ave., Beaver Falls,
Penn.
Link-Belt Speeder Corp., 301
W. Pershing Rd., Chicago
9, Ill.
Northwest Eng. Co., 28 E.
Jackson Blvd., Chicago 4,
Ill.
Parsons Co., Newton, Iowa

DRAFT GAUGES

Balley Meter Co., 1050 Ivan-
hoe Rd., Cleveland 10, Ohio
The Bristol Co., Waterbury
91, Conn.
Brown Instrument Co., 4444
Wayne Ave., Philadelphia,
Penn.
Defender Instrument & Reg-
ulator Co., 815 Clark Ave.,
St. Louis 2, Mo.
The Foxboro Co., Neponset
Ave., Foxboro, Mass.
The Hays Corp., 642 8th St.,
Michigan City, Ind.
Manning, Maxwell & Moore
Inc., 11 Elias St., Bridge-
port 2, Conn.

DRAGLINE CABLEWAY EXCAVATORS

American Chain & Cable Co.,
Inc., Bridgeport, Conn.
Beaumont Birch Co., 1505
Race St., Philadelphia,
Penn.
Clyde Iron Wks., Inc., 29th
Ave. W. & Michigan St.,
Duluth, Minn.
Columbia Steel Co., Russ
Bldg., San Francisco, Calif.
Downs Crane & Hoist Co.,
540 W. Vernon Ave., Los
Angeles 37, Calif.
Hazard Wire Rope Co.,
Wilkes-Barre, Penn.
Link-Belt Speeder Corp., 301
W. Pershing Rd., Chicago
9, Ill.
McKlerman-Terry Corp., 505
Manor Ave., Harrison, N.
J.
Robins Conveyors, Inc., (Div.
of Hewitt-Robins, Inc.),
270 Passaic Ave., Passaic,
N. J.
Sauerman Bros. Inc., 522 S.
Clinton St., Chicago 7, Ill.
Street Bros. Machine Co.,
415 Times Bldg., Chatta-
nooga 2, Tenn.

DRAGLINES, Diesel, Diesel
Electric, Electric, Gasol-
ine, Gasoline Electric,
Steam

American Hoist & Derrick
Co., 63 S. Robert St., St.
Paul 1, Minn.
American Steel Dredge Co.,
Inc., 2511 Taylor St., Ft.
Wayne 6, Ind.
Austin-Western Co., Aurora,
Ill.
Bay City Shovels, Inc., Bay
City, Mich.
The Browning Crane & Shov-
el Co., 163rd & Waterloo
Rd., Cleveland 10, Ohio
Buckeye Traction Ditcher
Co., Findlay, Ohio
Bucyrus-Erie Co., South Mil-
waukee, Wis.
The Byers Machine Co., Ra-
venna, Ohio
The Cooper-Bessemer Corp.,
Sandusky St., Mt. Vernon,
Ohio
The General Excavator Co.,
Cheney St., Marion, Ohio
Hanson Clutch & Mch. Co.,
Wall & Miami Sts., Tiffin
15, Ohio
Harnischfeger Corp., 4400 W.
National Ave., Milwaukee
14, Wis.
Insley Mfg. Co., 801 N. Ol-
ney, Indianapolis, Ind.
Keystone Driller Co., Beaver
Falls, Penn.
Koehring Co., 3026 W. Con-
cordia Ave., Milwaukee 10,
Wis.
Lima Locomotive Wks., Inc.,
Shovel & Crane Div., 1108
National Bank Bldg., Lima,
Ohio
Link-Belt Speeder Corp., 301
W. Pershing Rd., Chicago
9, Ill.
Manitowoc Engr. Wks., Man-
itowoc, Wis.
The Marion Power Shovel
Co., W. Center St., Marion,
Ohio
Michigan Power Shovel Co.,
Second & Miller Blvd.,
Benton Harbor, Mich.
Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.
Northwest Engr. Co., 28 E.
Jackson Blvd., Chicago 4,
Ill.
The Osgood Co., General Ex-
cavator Co., Marion, Ohio
Page Engr. Co., Clearing
Post Office, Chicago, Ill.
"Quick-Way" Truck Shovel
Co., P. O. Box 1800, Den-
ver, Colo.
Spears-Weils Mch. Co., Inc.,
1832 W. 9th St., Oakland
1, Calif.
Street Bros. Machine Co.,
415 Times Bldg., Chatta-
nooga 2, Tenn.
The Thew Shovel Co., 1374
E. 28th St., Lorain, Ohio
Unit Crane & Shovel Corp.,
6411 W. Burnham St., Mil-
waukee 14, Wis.
Wolverine Motor Wks., Inc.,
35 Union Ave., Bridgeport
2, Conn.

DRAGS, Sand

Allen Cone Mch. Corp., 120
Broadway, New York 5,
N. Y.
American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill.
Anderson Engr. Co., 237 Bent
St., Cambridge 41, Mass.
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Francisco
24, Calif.
Chain Belt Co., 1600 W. Bruce
St., Milwaukee, Wis.
The Conveyor Co., Inc., 3260
E. Slauson Ave., Los An-
geles 11, Calif.
Coyle & Roth Co., Inc., 3024
S.E. 4th St., Minneapolis
14, Minn.
Eagle Iron Works, 129 Hol-
comb, Des Moines, Iowa
Electric Steel Fdy. Co.,
2141 N.W. 25th Ave., Port-
land 10, Oregon
Flint & Walling Mfg. Co.,
Inc., Kendallville, Ind.

DIRECTORY

Iowa Mfg. Co., 916 16th St.
N.E., Cedar Rapids, Ia. 57
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kensington Steel Co., 505
Kensington Ave., Chicago
28, Ill.
Fred T. Kern Co., P.O. Box
2057, Milwaukee 1, Wis.
Link-Belt Co., 300 W. Per-
shing Rd., Chicago 9, Ill. 1
Lewistown Foundry & Ma-
chine Co., 16 Elizabeth,
Lewistown, Penn.
McLanahan & Stone Corp.,
200 Wall St., Hollidays-
burg, Penn. 139
Meckum Eng., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Pioneer Engineering Works,
Inc., 1515 Central Ave.,
Minneapolis 13, Minn.
Rogers Iron Works Co., 11th
& Pearl, Joplin, Mo.
Smith Engineering Works,
532 E. Capitol Dr., Mil-
waukee 12, Wis. 11
Stephens-Adamson Mfg. Co.,
7 Ridgeway, Aurora, Ill.
Taylor-Wharton Iron & Steel
Co., High Bridge, N. J. 137
Wisconsin Fdry. & Machine
Co., Madison, Wis.

DRAIN TILE MACHINES, Concrete

Anchor Concrete Machinery
Co., 1191 Fairview Ave.,
Columbus 8, Ohio 164
Concrete Equipment Co.,
Holland, Mich.
Concrete Pipe Machinery Co.,
Ninth & Division Sts.,
Sioux City 19, Iowa
Flint Walling Mfg. Co., Inc.,
Kendallville, Ind.
Quinn Wire & Iron Works,
Boone, Iowa

DREDGE PIPE AND FIT- TINGS (See Also Pipe)

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill. 45
American Rolling Mill Co.,
Curtis Ave., Middletown,
Ohio
American Steel Dredge Co.,
Inc., 2500 Taylor St., Ft.
Wayne, Ind.
Atlas Steel Construction Co.,
42 Dutchess St., Irvington,
N. Y. 186
Birdsboro Steel Fdry. & Ma-
chine Co., 1941 Furnace
St., Birdsboro, Penn.
Ellicott Machine Corp., 1611
Bush St., Baltimore, Md.
The Frog, Switch & Mfg.
Co., Carlisle, Penn. 150
The Manhattan Rubber Mfg.
Div. of Raybestos-Manhat-
tan, Inc., 61 Willett St.,
Passaic, N. J. 59
Meckum Eng., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Morris Machine Works, Bald-
winsville, N. Y. 151
Naylor Pipe Co., 1237 E.
92nd St., Chicago 19, Ill.
Republic Steel Corp., Re-
public Bldg., Cleveland 1,
Ohio
Taylor Forge & Pipe Works,
Box 485, Chicago, Ill.
Taylor-Wharton Iron & Steel
Co., High Bridge, N. J. 137

DREDGE PIPE SLEEVES

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill. 45
American Steel Dredge Co.,
Inc., 2500 Taylor St., Fort
Wayne, Ind.
Carlyle Rubber Co., Inc.,
Park Place, New York City
7, N. Y.
The Cincinnati Rubber Mfg.
Co., Franklin Ave., Cin-
cinnati 12, Ohio
The Gates Rubber Co., 999
S. Broadway, Denver 17,
Colo. 30
Goodall Rubber Co., 5 S.
36th St., Philadelphia 4,
Penn.

The B. F. Goodrich Co.,
Akron, Ohio 3
The Goodyear Tire & Rubber
Co., Inc., 1144 E. Market,
Akron, Ohio 9
Hewitt Rubber of Buffalo
Div., of Hewitt-Robins,
Inc., 240 Kensington Ave.,
Buffalo 5, N. Y. 56
The Manhattan Rubber Mfg.
Div. of Raybestos-Manhat-
tan, Inc., 61 Willett St.,
Passaic, N. J. 59
Meckum Eng. Co., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Morris Machine Works, Bald-
winsville, N. Y. 151
Quaker Rubber Corp., Comly
& Milnor Sts., Philadelphia
24, Penn. 12
Republic Rubber Div., Lee
Rubber & Tire Corp.,
Youngstown 1, Ohio
Thermoid Rubber, Div. of
Thermoid Co., Whitehead
Road, Trenton 6, N. J.
United States Rubber Co.,
1230 6th Ave., New York
20, N. Y.

DREDGE PUMPS

The Allen-Sherman-Hoff Co.,
1435 Locust St., Philadel-
phia 2, Penn. 78
American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill. 45
American-Marsh Pumps, Inc.,
205 Capital Ave., Battle
Creek, Mich.
American Steel Dredge Co.,
Inc., 2500 Taylor St., Fort
Wayne, Ind.
W. H. K. Bennett Co., 57 E.
Jackson, Chicago, Ill.
Birdsboro Steel Fdry. & Ma-
chine Co., 1941 Furnace
St., Birdsboro, Penn.
Byron Jackson Co., P. O.
Box 2017, Terminal Annex,
Los Angeles 54, Calif.
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th Cover
Electric Steel Fdry., 2141
N.W. 25th Ave., Portland,
Oregon
Ellicott Machine Corp., 1611
Bush St., Baltimore 30,
Md.
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Georgia Iron Works, 605
Twelfth St., Augusta, Ga.
Joshua Hendy Iron Wks.,
Box 37, Sunnyvale, Calif.
Hetherington & Berner, Inc.,
701 Kentucky Ave., Indian-
apolis 7, Ind.
Kansas City Hay Press Co.,
801 Woodweather Rd.,
Kansas City, Mo. 288
Lawrence Machine & Pump
Corp., 371 Market St., Law-
rence, Mass.
Meckum Eng., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Millville Iron Works, Inc.,
Sixth St. & Florence Ave.,
Millville, N. J.
Morris Machine Works, Bald-
winsville, N. Y. 154
Pettibone Mulliken Corp.,
4710 W. Division St., Chi-
cago 51, Ill.
Sterling Machinery Corp.,
411 Southwest Blvd., Kan-
sas City, Mo.
Worthington Pump & Ma-
chinery Corp., Harrison,
N. J.

DREDGES (Sand and Gravel) Ladder

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill. 45
American Steel Dredge Co.,
Inc., 2511 Taylor St., Fort
Wayne 6, Ind.
Atlas Steel Construction Co.,
42 Dutchess St., Irving-
ton, N. Y. 186
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th Cover
Eagle Iron Wks., 129 Hol-
comb Ave., Des Moines 4,
Iowa 301
Joshua Hendy Iron Works,
Box 37, Sunnyvale, Calif.
Kensington Steel Co., 505
Kensington Ave., Chicago
28, Ill.
Manitowoc Engr. Wks., Man-
itowoc, Wis. 42
Meckum Engr., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Millville Iron Works, Sixth
& Florence Ave., Millville,
N. J.
Morris Machine Wks., Bald-
winsville, N. Y. 151
Straub Mfg. Co., 507 Chest-
nut St., Oakland 7, Calif. 28

DREDGES (Sand and Gravel) Bucket, Dipper

American Steel Dredge Co.,
Inc., 2511 Taylor St., Ft.
Wayne 6, Ind.
Atlas Steel Construction Co.,
42 Dutchess St., Irving-
ton, N. Y. 186
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th Cover
Ellicott Machine Corp., 1611
Bush St., Baltimore, Md.
Joshua Hendy Iron Wks.,
Box 37, Sunnyvale, Calif.

Kensington Steel Co., 505
Kensington Ave., Chicago
28, Ill.
Lawrence Machine & Pump
Corp., 371 Market St.,
Lawrence, Mass.
Manitowoc Eng. Wks., Man-
itowoc, Wis. 42
Maxon Construction Co.,
Inc., 131 N. Ludlow St.,
Dayton 2, Ohio
Meckum Engr., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Sedgwick & Stanhope, 15 S.
William St., New York 4,
N. Y.

DREDGES (Sand & Gravel) Hydraulic

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill. 45
American Steel Dredge Co.,
Inc., 2511 Taylor St., Fort
Wayne 6, Ind.
Atlas Steel Construction Co.,
42 Dutchess St., Irving-
ton, N. Y. 186
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th Cover
Ellicott Machine Corp., 1611
Bush St., Baltimore, Md.
Joshua Hendy Iron Works,
Box 37, Sunnyvale, Calif.
Hetherington & Berner, Inc.,
701 Kentucky Ave., Indian-
apolis 7, Ind.
Lawrence Machine & Pump
Corp., 371 Market St.,
Lawrence, Mass.
Manitowoc Eng. Wks., Man-
itowoc, Wis. 42
Maxon Construction Co.,
Inc., 131 N. Ludlow St.,
Dayton 2, Ohio
Meckum Engr., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Millville Iron Works, Sixth
& Florence Ave., Millville,
N. J.
Morris Machine Wks., Bald-
winsville, N. Y. 151

DREDGES (Sand and Gravel) Ladder

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill. 45
American Steel Dredge Co.,
Inc., 2511 Taylor St., Fort
Wayne 6, Ind.
Atlas Steel Construction Co.,
42 Dutchess St., Irving-
ton, N. Y. 186
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th Cover
Eagle Iron Wks., 129 Hol-
comb Ave., Des Moines 4,
Iowa 301
Joshua Hendy Iron Works,
Box 37, Sunnyvale, Calif.
Kensington Steel Co., 505
Kensington Ave., Chicago
28, Ill.
Manitowoc Engr. Wks., Man-
itowoc, Wis. 42
Meckum Engr., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Millville Iron Works, Sixth
& Florence Ave., Millville,
N. J.
Morris Machine Wks., Bald-
winsville, N. Y. 151
Straub Mfg. Co., 507 Chest-
nut St., Oakland 7, Calif. 28

DRIFTERS

Chicago Pneumatic Tool Co.,
6 E. 44th St., New York 17,
N. Y. 44
Cleveland Rock Drill Co.,
3781 E. 77th St., Cleveland
5, Ohio.
Gardner-Denver Co., Quincy,
Ill.
Hardscog Pneumatic Tool
Co., 225 S. Benton St., Ot-
tumwa, Iowa
Independent Pneumatic Tool
Co., 600 W. Jackson Blvd.,
Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broad-
way, New York 4, N. Y.
Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.

Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.
Worthington Pump & Ma-
chinery Corp., Harrison,
N. J.

DRILL BITS, Detachable

Allied Steel Products, Inc.,
1721 N. B. C. Bldg., Cleve-
land 14, Ohio
Atlantic Steel Corp., 1775
Bdwy., New York 19, N. Y.
Chicago Pneumatic Tool Co.,
6 E. 44th St., New York,
N. Y. 44
Gardner-Denver Co., Gard-
ner & First Ave., Quincy,
Ill.
Hardscog Drill Co., 225 S.
Benton St., Ottumwa, Iowa
Independent Pneumatic Tool
Co., 600 W. Jackson Blvd.,
Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broad-
way, New York 4, N. Y.
Kadco Corp., 36-40 Eleventh
St., Long Island City, N. Y.
(Subsidiary of Complete
Machinery & Equipment Co.)
Rock Bit Sales & Service
Co., 2514-16 E. Cumberland
St., Philadelphia 25, Penn.
Rock Bit Service Co., 350
Depot St., Asheville, N. C.
The Sanderson-Cyclone Drill
Co., Orrville, Ohio
Schramm, Inc., West Ches-
ter, Penn.
Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.
Timken Roller Bearing Co.,
1835 Dueber Ave., S.W.,
Canton 6, Ohio 4
Worthington Pump & Mch.
Corp., 37 Appleton St.,
Holyoke, Mass.

DRILL SHARPENING MACHINES

Alloy & Steel Metals Co.,
1862 E. 55th St., Los An-
geles, Calif.
Bucyrus-Erie Co., P. O. Box
56, South Milwaukee, Wis.
Gardner-Denver Co., Quincy,
Ill.
Hardscog Drill Co., 225 S.
Benton St., Ottumwa, Iowa
Ingersoll-Rand Co., 11 Broad-
way, New York 4, N. Y.
The Mine & Smelter Supply
Co., 1422 17th St., Denver,
Colo.
Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.
Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.

DRILL STEEL

Allied Steel Products, Inc.,
1721 N. B. C. Bldg., Cleve-
land 14, Ohio
Atlantic Steel Corp., 1775
Bdwy., New York 19, N. Y.
Bethlehem Steel Corp., 701
East Third St., Bethlehem,
Penn. 65
Bucyrus-Erie Co., P. O. Box
56, S. Milwaukee, Wis. 4th Cover
Chicago Pneumatic Tool Co.,
6 East 44th St., New York
17, N. Y. 44
The Cleveland Rock Drill
Co., 3781 E. 77th St.,
Cleveland 5, Ohio
Gardner-Denver Co., Gard-
ner & First Ave., Quincy,
Ill.
Hardscog Drill Co., 225 S.
Benton St., Ottumwa, Iowa
Independent Pneumatic Tool
Co., 600 W. Jackson Blvd.,
Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broad-
way, New York 4, N. Y.
Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.
Rock Bit Sales & Service
Co., 2514-16 E. Cumber-
land St., Philadelphia 25,
Penn.
Rock Bit Service Co., 350
Depot St., Asheville, N. C.

DIRECTORY

Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000 A, Chicago 20, Ill.
The Sanderson-Cyclone Drill Co., Orrville, Ohio
Schramm, Inc., West Chester, Penn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham 2, Ala.
Worthington Pump & Machinery Corp., 744 Broad St., Newark, N. J.

DRILLING ACCESSORIES

Bucyrus-Erie Co., South Milwaukee, Wis., 4th Cover
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.
The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland, Ohio
Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Keystone Driller Co., 20th & 8th Ave., Beaver Falls, Penn.
Knox Mfg. Co., 811-823 Cherry St., Philadelphia 7, Penn.
The Loomis Machine Co., 15 East Market St., Tiffin, Ohio
The Sanderson-Cyclone Drill Co., Orrville, Ohio
Schramm, Inc., West Chester, Penn.
The Star Drilling Machine Co., 475 Washington, Akron 11, Ohio
Stow Mfg. Co., Inc., 443 State St., Binghamton, N. Y.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Worthington Pump & Machinery Corp., Harrison, N. J.

DRILLING CABLE, Manila, Sisal, etc.

E. I. DuPont de Nemours & Co., Inc., Nemours Bldg., Wilmington 98, Del.
The Edwin H. Fittler Co., 5625 Tacov St., Philadelphia 24, Penn.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
The Loomis Machine Co., 15 E. Market St., Tiffin, Ohio
The Star Drilling Machine Co., 475 Washington St., Akron 11, Ohio
Wall Rope Works, Inc., 48 South Street, New York 5, N. Y.

DRILLS, Core

Bucyrus-Erie Co., South Milwaukee, Wis., 4th cover
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.
Four Wheel Drive Auto Co., Clintonville, Wis.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
E. J. Longyear Co., 1701 Foshay Tower, Minneapolis, Minn.
The Sanderson-Cyclone Drill Co., Orrville, Ohio
J. K. Smit & Sons, Inc., 157 Chambers St., New York 7, N. Y.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

DRILLS, Gasoline, Rock

Bucyrus-Erie Co., South Milwaukee, Wis., 4th cover
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.

Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Syntron Co., 450 Lexington Ave., Homer City, Penn.

DRILLS, Pneumatic, Rock

Atlantic Steel Corp., 1775 Broadway, New York 19, N. Y.
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.
The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland 5, Ohio
Davey Compressor Co., 266 N. Water St., Kent Ohio
Gardner-Denver Co., Quincy, Ill.
Harrison Drill Co., 225 S. Benton St., Ottumwa, Iowa
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Kado Corp., 36-40 Eleventh Street, Long Island City, N. Y.
LePol Co., 1706 S. 68th St., Milwaukee 14, Wis.
Morse Bros. Mach. Co., 2900 Broadway, Denver 1, Colo.
Schramm, Inc., West Chester, Penn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Worthington Pump & Machinery Corp., Harrison, N. J.

DRILLS, Stinger

Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y.
Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland 5, Ohio
Gardner-Denver Co., Quincy, Ill.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Morse Bros. Mach. Co., 2900 Broadway, Denver 1, Colo.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Worthington Pump & Machinery Corp., Harrison, N. J.

DRILLS, Well or Blast-Hole

Bucyrus-Erie Co., South Milwaukee, Wis., 4th cover
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
Keystone Driller Co., 20th & 8th Ave., Beaver Falls, Penn.
The Loomis Machine Co., 15 East Market St., Tiffin, Ohio
The Sanderson-Cyclone Drill Co., 157 S. Main St., Orrville, Ohio
The Star Drilling Machine Co., 475 Washington, Akron 11, Ohio
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

DRIVES, Chain and Rope

Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Continental Gin Co., Industrial Div., 4500 5th Ave., So., Birmingham Ala.
Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
Industrial Gear Mfg. Co., 4544 Van Buren St., Chicago 24, Ill.

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y.
Link-Belt Co., 220 So. Belmont Ave., Indianapolis 6, Ind.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
Morse Chain Co., Turner Pl., Ithaca, N. Y.
Rockwood Mfg. Co., 1801 English Ave., Indianapolis, Ind.
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Webster Mfg., Inc., Tiffin, Ohio.

DRIVES, Gear

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Cleveland Worm & Gear Co., 3272 E. 80th Street, Cleveland 4, Ohio
Continental Gin Co., Industrial Div., 4500 5th Ave., So., Birmingham, Ala.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans.
Falk Corp., 3001 W. Canal St., Milwaukee 8, Wis.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
Graham Transmissions Inc., 3754 N. Holton St., Milwaukee 12, Wis.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
D. O. James Mfg. Co., 1140 W. Monroe St., Chicago, Ill.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
Industrial Gear Mfg. Co., 4544 W. Van Buren St., Chicago 24, Ill.
W. A. Jones Foundry & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y.
Link-Belt Co., 2045 West Hunting Park Ave., Philadelphia 40, Penn.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
Pacific Car & Fdry. Co., 4th & Factory Sts., Renton, Wash.
Philadelphia Gear Works, Inc., Erie Ave. & G St., Philadelphia 34, Penn.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Webster Mfg., Inc., Tiffin, Ohio
Western Gear Works, 417 Ninth South, Seattle 4, Wash.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

DRIVES, Short-Center

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.

Browning Mfg. Co., 1935 Browning St., Maysville, Ky.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Chicago Belting Co., 113-125 N. Green St., Chicago 7, Ill.
Continental Gin Co., Industrial Div., 4500 5th Ave., So., Birmingham, Ala.
Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans.
The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y.
Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
Rockwood Mfg. Co., 1801 English Ave., Indianapolis, Ind.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y.

DRIVES, Variable Speed

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Electric Machinery Mfg. Co., 1331 N. E. Tyler St., Minneapolis 13, Minn.
The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.
General Electric Co., 1 River Road, Schenectady 5, N. Y.
Graham Transmissions, Inc., 3754 N. Holton St., Milwaukee 12, Wis.
Ideal Commutator Dresser Co., Box 1001, Sycamore, Ill.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y.
Kent Machine Co., Cuyahoga Falls, Ohio
Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.
Morse Chain Co., Turner Pl., Ithaca, N. Y.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
Reeves Pulley Co., Columbus, Ind.
Relliance Electric & Engr. Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles 54, Calif.
Western Gear Works, 417 Ninth South, Seattle 4, Wash.
Worthington Pump & Machinery Corp., Harrison, N. J.

DRIVES, V-Belt, Flat Belt

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Browning Mfg. Co., 1935 Browning St., Maysville, Ky.
Chicago Belting Co., 113-125 N. Green Street, Chicago 7, Ill.
The Dayton Rubber Mfg. Co., P. O. Box 1004, Dayton 1, Ohio
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans.
The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

DIRECTORY

The B. F. Goodrich Co., Akron, Ohio
J. E. Rhoads & Sons, 35 N. Sixth St., Philadelphia 6, Penn.
Thermoid Co., Whitehead Road, Trenton 6, N. J.
United States Rubber Co., 1230 6th Ave., New York 20, N. Y.

DRY PANS

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
The Bonnot Co., Mulberry Rd., S.E., Canton, Ohio
Eagle Iron Works, 129 Holcomb Ave., Des Moines 4, Iowa
Hendricks Mfg. Co., 39 Dundoff St., Carbondale, Penn.
International Engr., Inc., Bolander Ave., Dayton 1, Ohio
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.
W. A. Riddell Corp., Bucyrus, Ohio.

DRYERS

(Gravel, Rock, Sand, Rotary)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
The Babcock & Wilcox Company, 85 Liberty Street, New York 6, N. Y.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Bonnot Co., Mulberry Road S.E., Canton, Ohio.
Centrifuge Mechanical Equipment, Inc., 95 River St., Hoboken, N. J.
L. R. Christie Co., 17 E. 42nd St., New York 17, N. Y.
Colorado Iron Works Co., 1624 17th St., Denver 2, Colo.
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
The F. D. Cumber & Son Co., E. 608 Keith Bldg., Cleveland 15, Ohio
Denver Equipment Co., 1400 17th St., Denver 17, Colo.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
The Elco Corp., P. O. Box 300, Salt Lake City 8, Utah
Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn.
Joshua Hendy Iron Works, Box 37, Sunnyvale, Calif.
Hendrick Mfg. Co., 39 Dundoff St., Carbondale, Penn.
Hetherington & Berner, Inc., 701 Kentucky Ave., Indianapolis 7, Ind.
Indiana Foundry Co., 154 Clymer Ave., Indiana, Penn.
Iowa Mfg. Co., 946 16th St., N.E., Cedar Rapids, Iowa
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave., Bldg., New York, 16, N. Y.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Louisville Drying Mch. Co., 463 Baxter Ave., Louisville, Ky.
The Macleod Co., 2232-40 Bogen St., Cincinnati, Ohio

The McCarter Iron Wks., Inc., Mill & Washington Sts., Allentown, Penn.
McDermott Bros. Co., Ft. of Washington St., Allentown, Penn.
McGann Mfg. Co., Inc., Box 1187, York, Penn.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.
Maddox Fdy. & Machine Wks., Archer, Fla.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Manitowoc Engr. Works, Manitowoc, Wis.
Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
Nichols Engineering & Research Corp., 60 Wall Tower, New York 5, N. Y.
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis.
Pangborn Corp., 120 Pangborn Blvd., Hagerstown, Md.
Pioneer Engr. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
Ruggles-Coles Engr. Co., 122 E. 42nd St., New York, N. Y.
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

DRYERS (Plaster Board)

Centrifuge Mechanical Equipment, Inc., 95 River St., Hoboken, N. J.
The Coe Mfg. Co., Palmsville, Ohio.

DRYERS (Steam Coil)

Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Centrifuge Mechanical Equipment, Inc., 95 River St., Hoboken, N. J.
L. R. Christie Co., 17 East 42nd St., New York 17, N. Y.
Denver Equipment Co., 1400 17th St., Denver 17, Colo.
Hardinge Co., Inc., 240 Arch St., York, Penn.
McDermott Bros. Co., Ft. of Washington St., Allentown, Penn.
Millville Iron Works, Sixth & Florence Ave., Millville, N. J.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
W. A. Riddell Corp., Bucyrus, Ohio
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
The Trane Company, 2nd & Cameron Ave., La Crosse, Wis.
Young Radiator Co., 709 S. Marquette St., Racine, Wis.

DUMPING MECHANISMS, Truck

Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
Four Wheel Drive Auto Co., Clintonville, Wis.
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.

Hercules Steel Products Co., Galion, Ohio
The Marion Metal Products Co., Cheney St., Marion, Ohio

National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
Oshkosh Motor Truck, Inc., 2302 Oregon St., Oshkosh, Wis.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo, N. Y.

DUST COLLECTING EQUIPMENT & SUPPLIES

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Air Filter Co., Inc., 107 Central Ave., Louisville 8, Ky.
American Blower Corp., Box 58, Roosevelt Park Annex, Detroit 32, Mich.
American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Beaumont Birch Co., 1505 Race St., Philadelphia 2, Penn.
Buell Eng. Co., Inc., 70 Pine, New York 5, N. Y.
Buffalo Forge Co., P. O. Box 985, Buffalo 5, N. Y.
By-Products Recoveries, Inc., 90 West St., New York 6, N. Y.
Clark Dust Control Co., 210 N. Mozart St., Chicago, Ill.
Draco Corp., 4043 E. 116th St., Cleveland, Ohio
Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
Fisher Scientific Co., 717 Forbes St., Pittsburgh, Penn.
Ideal Industries, Inc., Sycamore, Ill.
Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa.
Kadco Corp., 36-40 Eleventh Street, Long Island City, N. Y.
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York City, N. Y.
The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
Lime & Hydrate Plants Co., York, Penn.
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
Markley Dust Control System, Inc., 432 Fayette Ave., Mamaroneck, N. Y.
D. J. Murray Mfg. Co., Wausau, Wis.
The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio
Pangborn Corp., Hagerstown, Md.
Parsons Eng. Corp., 2546 E. 79th St., Cleveland 4, Ohio
Ruemelin Mfg. Co., 3860 N. Palmer St., Milwaukee 12, Wis.
Claude B. Schnelble Co., 2827 25th St., Detroit 32, Mich.
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, Ohio
The Spencer Turbine Co., 486 New Park Ave., Hartford 6, Conn.
Sprout, Waldron, Muncy, Penn.
B. F. Sturtevant Co., 103 Clayton St., Boston, Mass.
Sutton, Steele & Steele, Inc., 1031 S. Haskell St., Dallas 10, Tex.

Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
Whiting Corp., Harvey, Ill.

DUST COLLECTORS, Bag-Type

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Air Filter Co., Inc., 107 Central Ave., Louisville 8, Ky.
American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.
Ralph B. Carter Co., Markley-Carter Dust Collector Div., 192 Atlantic St., Hackensack, N. J.
Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala.
J. P. Devine Mfg. Co., Inc., 909 Shawnee, Mt. Vernon, Ill.
Draco Corp., 4043 E. 116th St., Cleveland, Ohio
The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
Hardinge Co., Inc., 240 Arch St., York, Penn.
Macleod Co., 2232-40 Bogen St., Cincinnati 22, Ohio
The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio
Pangborn Corp., Hagerstown, Md.
Parsons Engr. Corp., 2546 E. 79th St., Cleveland 4, Ohio
Ruemelin Mfg. Co., 3860 N. Palmer St., Milwaukee 12, Wis.
The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, Ohio
Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.

DUST COLLECTORS, Cyclone

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Air Filter Co., Inc., 107 Central Ave., Louisville 8, Ky.
American Blower Corp., Box 58, Roosevelt Park Annex, Detroit 32, Mich.
American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill.
Bayley Blower Co., 1817 S. 66th Street, Milwaukee 14, Wis.
Buell Engr. Co., Inc., 70 Pine, New York 5, N. Y.
Buffalo Forge Co., P. O. Box 985, Buffalo 5, N. Y.
L. Burmeister Co., 3225 W. Burnham St., Milwaukee 4, Wis.
By-Products Recoveries, Inc., 90 West St., New York 6, N. Y.
Draco Corp., 4043 E. 116th St., Cleveland, Ohio
The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa
The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
The McCarter Iron Wks., Inc., Mill & Washington Sts., Allentown, Penn.
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio

DIRECTORY

Pangborn Corp., 120 Pangborn Blvd., Hagerstown, Md.
 Parsons Engr. Corp., 2546 E. 79th St., Cleveland 4, Ohio.
 Prat-Daniel Corp., 84 S. Water St., East Portchester, Conn.
 Separations Eng. Corp., 110 E. 2nd St., New York 17, N. Y.
 Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
 Sprout, Waldron, Muncy, Penn.
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
 Thermix Engr. Co., First National Bank Bldg., Greenwich, Conn.
 Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
 Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo. 27

DUST COLLECTORS, Electrical Precipitators

American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.
 Parsons Engr. Corp., 2546 E. 79th St., Cleveland 4, Ohio.
 Research Corp., 405 Lexington Ave., New York 17, N. Y.
 Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
 Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

DUST COLLECTORS, Hydraulic

American Air Filter Co., 107 Central Ave., Louisville 8, Ky. 52
 The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio
 Parsons Engr. Corp., 2546 E. 79th St., Cleveland 4, Ohio.
 Pioneer Engineering Works Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Claude B. Schneible Co., 2827 25th St., Detroit 16, Mich.
 Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
 Warren Brothers Roads Co., 38 Memorial Drive, Cambridge 42, Mass.
 Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.

DUST COLLECTORS, Portable

American Air Filter Co., 107 Central Ave., Louisville 8, Ky. 52
 Ralph B. Carter Co., Markley-Carter Dust Collector Div., 192 Atlantic St., Hackensack, N. J.
 Dracco Corp., 4043 E. 116th St., Cleveland, Ohio
 The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 Ideal Commutator Dresser Co., Park & Borden Ave., Sycamore, Ill.
 Kado Corp., 36-40 Eleventh St., Long Island City, N. Y. (Subsidiary of Complete Machinery & Equip. Co.)
 Lewistown Foundry & Machinery Co., 16 Elizabeth, Lewistown, Penn.
 Markley Dust Control System, 80 Snyder Rd., Ramsey, N. J.
 The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio
 Pangborn Corp., 120 Pangborn Blvd., Hagerstown, Md.
 Parsons Engr. Corp., 2546 E. 79th St., Cleveland 4, Ohio.
 Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
 The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, Ohio 135
 Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
 United States Hoffman Machinery Corp., 105 4th Ave., New York 3, N. Y.
 Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
 RALPH B. CARTER CO., Markley-Carter Dust Collector Div., 192 Atlantic St., Hackensack, N. J.
 The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
 Markley Dust Control System, 80 Snyder Rd., Ramsey, N. J.
 The Northern Blower Co., 6409 Barborton Ave., Cleveland 2, Ohio.
 Parsons Engr. Corp., 2546 E. 79th St., Cleveland 4, Ohio.
 Spencer Turbine Co., 486 New Park Ave., Hartford 6, Conn.
 FISHER SCIENTIFIC CO., 717 Forbes Street, Pittsburgh 19, Penn.
 Mine Safety Appliances Co., Braddock, Thomas & Meade St., Pittsburgh 8, Penn.
 Research Corp., 405 Lexington Ave., New York, N. Y.
 Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
 Willson Products, Inc., 2nd & Washington Sts., Reading, Penn.
 DYNAMITE AND BLASTING EXPLOSIVES (See Explosives & Dynamite)
 EARTH MOVING EQUIPMENT (Stripping and Excavating)
 Athey Products Corp., 5631 West 65th St., Chicago 38, Ill.
 Austin-Western Co., 601 Farnsworth Ave., Aurora 11, Ill.
 Bucyrus-Erie Co., South Milwaukee, Wis. 4th Cover
 Caterpillar Tractor Co., Peoria 8, Ill. 41
 Electric Steel Fdry., 2141 N.W., 25th Ave., Portland, Ore.
 Euclid Road Machinery Co., 1361 Chardon Rd., Cleveland 17, Ohio
 Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 153
 The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis.
 Henneuse Engr. Co., 400 Monroe St., Marion, Ohio.
 Isaacson Iron Wks., 2917 E. Marginal Way, Seattle 14, Wash.
 Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
 LaPlant-Choute Mfg. Co., 2920 1st Ave., N.E., Cedar Rapids, Iowa 46
 R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.
 Lima Locomotive Works, Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
 Pacific Car & Foundry Co., Factory St., Renton, Wash.

Link-Belt Corp., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Manitowoc Engr. Wks., Manitowoc, Wis. 42
 M-R-S Mfg. Co., P.O. Box 1206, 1940 N. Mill Rd., Jackson, Miss.
 The Oliver Corporation, 400 W. Madison St., Chicago 6, Ill.
 Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
 Trackson Co., 3333 So. Chase Ave., Milwaukee 1, Wis. 40
 The Thew Shovel Co., 1374 E. 28th St., Lorain, Ohio
 Southwest Welding & Mfg. Co., 3201 W. Mission Rd., Alhambra, Calif.

ECONOMIZERS, Waste Heat (See Boilers, Waste Heat)

ELECTRIC MOTORS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Louis Allis Co., 427 E. Stewart St., Milwaukee 7, Wis.
 Burke Electric Co., 12th & Cranberry, Erie, Penn.
 Byron Jackson Co., P.O. Box 2017 Terminal Annex, Los Angeles 54, Calif.
 Century Electric Co., 1806 Pine, St. Louis 3, Mo.
 Crocker-Wheeler Elec. Mfg. Co., Div. of Joshua Hendy Iron Works, Ampere, N.J.
 Electric Machinery Mfg. Co., 1331 N. E. Tyler St., Minneapolis 13, Minn.
 Emerson Electric Mfg. Co., 1824 Washington Ave., St. Louis 3, Mo.
 Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 General Electric Co., 1 River Road, Schenectady 5, N. Y.
 Howell Electric Motors Co., 409 Roosevelt Ave., Howell, Mich.
 The Ideal Electric & Mfg. Co., East First & Oak, Mansfield, Ohio
 Janette Mfg. Co., 556 W. Monroe St., Chicago 6, Ill.
 Reliance Electric & Eng. Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio
 Sterling Electric Motors, Inc., 5401 Anaheim-Telegraph Rd., Los Angeles 22, Calif.
 U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles 54, Calif.
 Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.
 Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

ELECTRIC SWITCH GEAR

Albert & J. M. Anderson Mfg. Co., 291 A Street, Boston 10, Mass.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Electric Mchry. Mfg. Co., 1331 Tyler St., N. E., Minneapolis 13, Minn.
 General Electric Co., 1 River Road, Schenectady 5, N. Y.
 International Diesel Electric Co., Inc., 13-02 44th Ave., Long Island City 1, N. Y.
 The Woodford Engr. Co., 77 West Washington St., Chicago 2, Ill.

ELECTRIC TRANSFORMERS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Electric Mchry. Mfg. Co., 1331 Tyler St., N. E., Minneapolis 13, Minn.
 General Electric Co., 1 River Road, Schenectady 5, N. Y.
 Morse Bros. Mchry. Co., 2900 Broadway, Denver 1, Colo.
 Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.

ELECTRICAL EQUIPMENT AND SUPPLIES

Albert & J. M. Anderson Mfg. Co., 291 A Street, Boston 10, Mass.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.
 Electric Controller & Mfg. Co., 2700 E. 79th St., Cleveland 4, Ohio
 Electric Machinery Mfg. Co., 1331 Tyler St., N.E., Minneapolis 13, Minn.
 Federal Electric Products Co., 50 Paris St., Newark, N. J.
 General Electric Co., 1 River Road, Schenectady 5, N. Y.
 Holub Industries, Inc., 413 Dekalb Ave., Sycamore, Ill.
 International Diesel Electric Co., Inc., 13-02 44th Ave., Long Island City 1, N. Y.
 I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Philadelphia 30, Penn.
 J. B. T. Instruments, Inc., 441 Chapel St., New Haven 8, Conn.
 Janette Mfg. Co., 556 W. Monroe St., Chicago 6, Ill.
 Johns-Manville, 22 E. 40th St., New York 16, N. Y.
 Keystone Electric Co., 1220 Ridgely St., Baltimore 30, Md.
 Square D Co., Industrial Controller Div., 4041 N. Richards St., Milwaukee 12, Wis.
 Ticket Office Equipment Co., Inc., 3913 Provost Ave., New York, N. Y.
 Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.
 Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
 Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.
 Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.
 Witte Engine Works, Div. of Oil Well Supply Co., 1600 Oakland Ave., Kansas City 3, Mo.
 The Woodford Engr. Co., 77 West Washington St., Chicago 2, Ill.

ELECTRICAL INSTRUMENTS

The Bristol Co., Waterbury 91, Conn.
 Brown Instrument Co., 4444 Wayne Ave., Philadelphia, Penn. 50
 Builders-Providence, Inc., 9 Coddling St., Providence 1, R. I.
 Cambridge Instrument Co., Inc., 3010 Grand Central Terminal, New York 17, N. Y.
 Electric Controller & Mfg. Co., 2700 E. 79th St., Cleveland 4, Ohio
 Electric Machinery Mfg. Co., 1331 Tyler St., N.E., Minneapolis 13, Minn.
 The Foxboro Co., Neponset Ave., Foxboro, Mass.
 General Electric Co., 1 River Road, Schenectady 5, N. Y.
 Holub Industries, Inc., 413 Dekalb Ave., Sycamore, Ill.
 J. B. T. Instruments, Inc., 441 Chapel St., New Haven 8, Conn.
 Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
 Photoswitch, Inc., 77 Broadway, Cambridge 42, Mass.
 Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.
 Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

DIRECTORY

ELECTRICAL SEPARATORS

American Air Filter Co., Inc., 107 Central Ave., Louisville 8, Ky. 52
Dings Magnetic Separator Co., 509 E. Smith St., Milwaukee 7, Wis.
Electric Controller & Mfg. Co., 2700 E. 79th St., Cleveland 4, Ohio
Ritter Products Corp., Ritter Park, Rochester 3, N. Y.
Separations Engr. Corp., 110 E. 42nd St., New York 17, N. Y.
Sutton, Steele & Steele, Inc., 1031 S. Haskell, Dallas 10, Texas
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

ELECTRODES, Welding (See Welding Rods and Electrodes)

ELEVATORS, Chain or Belt & Bucket

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Anderson Engr. Co., 237 Bent St., Cambridge 41, Mass.
Atlas Conveyor Co., 15th St., Clintonville, Wis.
Austin-Western Co., Aurora, Ill.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16
Beaumont Birch Co., 1505 Race St., Philadelphia 2, Penn.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco, Calif.
Brooks Equipment & Mfg. Co., 408 Davenport Road, Knoxville, Tenn.
L. Burmeister Co., 3225 W. Burnham St., Milwaukee 4, Wis.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
The Columbus Conveyor Co., 869 W. Goodale St., Columbus, Ohio
Concrete Transport Mixer Co., 650 Rosedale, St. Louis 12, Mo. 188
Continental Gin Co., Industrial Division, 4500 5th Ave., S., Birmingham, Ala. 136
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis, Minn.
Eagle Crusher Co., Inc., 900 Harding Way, E. Galion, Ohio.
J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 158
The Elmco Corp., P.O. Box 300, Salt Lake City 8, Utah
Erie Steel Construction Co., Gelst Rd. & N.P.R.R., Erie, Penn. 192
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 158
Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio
Fleming Mfg. Co., Inc., 4985 Flyer Ave., St. Louis 9, Mo. 190
General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
Gifford-Wood Co., Hudson, N. Y.
George Halss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
Helmick Foundry - Machine Co., Lock Drawer 71, Fairmont, W. Va.

Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
Hewitt Rubber of Buffalo, Div. of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.
R. R. Howell Co., P.O. Box 264, Minneapolis, Minn.
Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
The C. S. Johnson Co., P.O. Box 71, Champaign, Ill.
E. B. Kelly Co., Farmingdale, N. J.
Kennedy-Van Saun Mfg. & Engineering Co., 2 Park Ave. Bldg., New York City 16, N. Y. 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Kent Machine Co., Cuyahoga Falls, Ohio 187
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Pa.
Lime & Hydrate Plants Co., P.O. Box 1387, York, Penn.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
The McCarter Iron Wks., Inc., Mill & Washington Sts., Norristown, Penn.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
Madson Iron Wks., 5631 Bickett St., Huntington Park, Calif.
E. F. Marsh Engr. Co., 4030 Chouteau Ave., St. Louis 10, Mo.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
The Neff & Fry Co., Camden, Ohio
New Holland Mfg. Co., Mountville, Penn. 154
Noble Co., 1860 7th St., Oakland 7, Calif.
Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Portable Elevator Mfg. Co., 920 E. Grove St., Bloomington, Ill.
Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn. 12
W. A. Riddle Corp., Bucyrus, Ohio
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, New Jersey
Rogers Iron Works Co., 11th & Pearl, Joplin, Missouri
Screw Conveyor Corp., 700 Hoffman St., Hammond, Ind.
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
Smith Engr. Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 11
Spears-Wells Mehry Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
Sprout, Waldron & Co., Muncy, Penn.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stearns Mfg. Co., Inc., Adrian Michigan
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass. 2nd Cover
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
W. Toeffer & Sons, Inc., 1450 E. Park Place, Milwaukee 11, Wis.
Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
United States Rubber Co., 1230 6th Ave., New York 20, N. Y.
Universal Concrete Machinery Co., Inc., 297 S. High St., Columbus 15, Ohio.
Universal Eng. Corp., 625 C Ave., W., Cedar Rapids, Iowa
Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
Vulcan Iron Wks., 730 S. Main St., Wilkes-Barre, Penn.
Webster Mfg., Inc., Tiffin, Ohio
Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo. 27
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

ELEVATORS, Bulk Cement

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala. 136
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Erie Steel Const. Co., Gelst Rd. & N.P.R.R., Erie, Penn. 192
Fuller Co., Fuller Bldg., Catasauqua, Penn. 25
General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
George Halss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 15
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
New Holland Machine Co., 100 Franklin St., New Holland, Penn. 154
Noble Co., 1860 7th St., Oakland 7, Calif.
Screw Conveyor Co., 700 Hoffman St., Hammond, Ind.
Sprout, Waldron & Co., Muncy, Penn.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass. 2nd Cover
Webster Mfg., Inc., Tiffin, Ohio

ELIMINATORS, Soft Stone (See also Soft Stone Eliminators, Scrubbers)

Anderson Engr. Co., 19-21 Charles St., Cambridge 41, Mass.

Eagle Iron Works, 129 Holcomb, Des Moines, Ia. 301
Lewistown Foundry & Machine Co., 16 Elizabeth, Lewistown, Penn.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
New Holland Mfg. Co., Mountville, Penn. 154
Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
Simplicity Eng. Co., Oak St., Durand, Mich. 131
Smith Eng. Works, 532 E. Capitol Drive, Milwaukee, Wis. 10
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

ENGINEERING SERVICE, Consulting and Designing

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
Anderson Engr. Co., 237 Bent St., Cambridge 41, Mass.
Arnold & Welgel Inc., Woodville, Ohio
Victor J. Azbe, 6625 Delmar Blvd., St. Louis 5, Mo.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco, Calif.
Burrell Eng. & Const. Co., 400 W. Madison, Chicago, Ill.
J. D. Christian Engineers, 480 Potrero Ave., San Francisco, Calif.
Clyde Iron Wks., 29th Ave. & Michigan St., Duluth 1, Minn.
Diamond Iron Wks., Inc., & The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 164
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
The H. K. Ferguson Co., 19 Rector St., New York, N. Y.
The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
Gar-Bro Mfg. Co., Div. Of Garlinghouse Bro. Mfg. Co., 2416 E. 16th St., Los Angeles 21, Calif.
Gifford-Wood Co., Hudson, N. Y.
Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
E. Lee Heidenreich, Jr., Consulting Engineer, Newburgh, N. Y.
Henry J. Kaiser Co., Latham Square Bldg., Oakland 12, Calif.
Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Avenue Bldg., New York, N. Y. 15
Fred T. Kern Co., P.O. Box 2057, Milwaukee 1, Wis.
Koppers Co., Inc., Koppers Building, Pittsburgh 19, Penn.
R. G. Le Tourneau, Inc., 2301 North Adams, Peoria 3, Ill.
Lewistown Foundry & Machine Co., 16 Elizabeth, Lewistown, Penn.
L. I. M. E., 22 E. Granada Ave., Hershey, Penn.
Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1

DIRECTORY

Lukens Steel Co., 1945 Gil-
len St., Coatsville, Penn.
MacDonald Engr. Co., 188 W.
Randolph St., Chicago 1,
Ill.
McLanahan & Stone Corp.,
200 Wall St., Hollidays-
burg, Penn. 139
Manitowoc Eng. Works,
Manitowoc, Wis. 42
E. F. Marsh Engr. Co., 4030
Chouteau Ave., St. Louis,
10, Mo.
Meckum Engr. Co., 53 W.
Jackson Blvd., Chicago 4,
Ill.
The Mine & Smelter Supply
Co., P. O. Box 5270 Ter-
minal Station, Denver 17,
Colo.
Morrow Mfg. Co., 722 E. 10th
St., Wellston, Ohio
The Nicholson Co., 10 Rocke-
feller Plaza, New York 20,
N. Y.
Nordberg Mfg. Co., 3083 S.
Chase Ave., Milwaukee 1,
Wis. 22
Pacific Car & Fdy. Co., Fac-
tory St., Renton, Wash.
Parsons Engr. Corp., 2546
E. 79th St., Cleveland 4,
Ohio.
H. K. Porter Co., Inc., 49th
Harrison St., Pittsburgh,
Penn.
W. A. Riddell Corp., War-
ren St., Bucyrus, Ohio
Robins Conveyors Inc., (Div.
of Hewitt-Robins, Inc.),
270 Passaic Ave., Passaic,
N. J. 56
Rogers Iron Works Co., 11th
& Pearl, Joplin, Mo.
Separations Process Co.,
Fuller Bldg., Catasauqua,
Penn.
F. L. Smith & Co., 11 W.
42nd St., New York 18,
N. Y. 71
Southwestern Eng. Co., 4800
Santa Fe Ave., Los An-
geles 11, Calif.
Sprout, Waldron, Muncy, Penn.
The Stearns-Roger Mfg. Co.,
1718-1722 California St.,
Denver 2, Colo.
Stephens-Adamson Mfg. Co.,
7 Ridgeway, Aurora, Ill.
Sturtevant Mill Co., 41 Har-
rison Squ., Boston 22,
Mass. 2nd Cover
Traylor Eng. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn. 7
Vulcan Iron Wks., 700 S.
Main St., Wilkes-Barre,
Penn.
Webster Mfg., Inc., Titm.,
Ohio
Hugo W. Welmer, 2112 W.
State St., Milwaukee 3,
Wis.
Van Valkenburgh, Nooger &
Neville, Inc., 15 Maiden
Lane, New York 7, N. Y.
Western Machinery Co., 670
Folsom St., San Francisco,
Calif.
Williams Patent Crusher &
Pulv. Co., 2701 N. Broad-
way, St. Louis 6, Mo. 27
Wisconsin Foundry & Mach.
Co., 623 E. Main St., Mad-
ison 1, Wis.

ENGINES, Diesel (See Diesel Engines)

ENGINES, Gasoline (See Gasoline Engines)

ENGINES, Kerosene, Oil

Allis-Chalmers Tractor Div.,
1126 S. 70th St., Milwau-
kee, Wis. 49, 53
The Buda Co., 15428 Com-
mercial Ave., Harvey, Ill.
Busch-Sulzer Bros. Diesel En-
gine Co., 3300 S. 2nd St.,
St. Louis 18, Mo.
Climax Industries, Inc., 1812
S. 4th St., Clinton, Iowa
Continental Motors Corp.,
Muskegon, Mich.
Fairbanks Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Hercules Motors Corp., 201
11th St., S. E., Canton 2,
Ohio.

Minneapolis-Moline Power
Implement Co., Box 1050,
Minneapolis 1, Minn.
Novo Engine Co., 702 Porter
St., Lansing, Mich.
Wisconsin Motor Corp., 1910
S. 53rd St., Milwaukee 14,
Wis. 155
Witte Eng. Wks., Div. of
Oil Well Supply Co., 1600
Oakland, Kansas City, Mo.
Worthington Pump & Mch.
Corp., Harrison, N. J.

ENGINES, Marine

The Buda Co., 15428 Com-
mercial Ave., Harvey, Ill.
Caterpillar Tractor Co., Pe-
oria 8, Ill. 41
Climax Industries, Inc., 1812
S. 4th St., Clinton, Iowa
Continental Motors Corp.,
Muskegon, Mich.
The Cooper-Bessmer Corp.,
Mt. Vernon, Ohio.
Cummins Engine Co., 5th &
Wilson Sts., Columbus, Ind.
Detroit Diesel Engine Div.,
General Motors Corp., 13400
W. Outer Drive, Detroit
23, Mich.
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Gar Wood Industries, Inc.,
7924 Riopelle St., Detroit
11, Mich.
Ingersoll-Rand Co., 11
Broadway, New York 4,
N. Y.
Joshua Hendy Iron Wks.,
Box 37, Sunnyvale 11, Calif.
Mack International Motor
Truck Corp., Empire State
Bldg., New York 1, N. Y. 32
Minneapolis-Moline Power
Implement Co., Box 1050,
Minneapolis 1, Minn.
Nordberg Mfg. Co., 3083 So.
Chase Ave., Milwaukee 7,
Wis. 22
R. H. Sheppard Co., Phila-
delphia St., Hanover, Penn.
Sterling Engine Co., 1270
Niagara St., Buffalo 13,
N. Y.
Superior Engine Div. Na-
tional Supply Co., Spring-
field, Ohio
Universal Motor Co., 186
Harrison St., Oshkosh, Wis.
Witte Eng. Wks. Div. of
Oil Well Supply Co., 1600
Oakland, Kansas City, Mo.
Worthington Pump & Mch.
Corp., Harrison, N. J.

ENGINES, Natural Gas

The Buda Co., 15428 Com-
mercial Ave., Harvey, Ill.
Caterpillar Tractor Co., Pe-
oria 8, Ill. 41
Climax Industries, Inc., 1812
S. 4th St., Clinton, Iowa
Continental Motors Corp.,
Muskegon, Mich.
The Cooper-Bessmer Corp.,
Mt. Vernon, Ohio.
Detroit Diesel Engine Div.,
General Motors Corp., 13400
West Outer Drive,
Detroit 23, Mich.
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Hercules Motors Corp., 201
11th St., S. E., Canton 2,
Ohio.
Ingersoll-Rand Co., 11
Broadway, New York 4,
N. Y.
International Harvester Co.,
180 N. Michigan Ave., Chi-
cago 1, Ill. 23
LeRoi Co., 1706 S. 68th St.,
Milwaukee 14, Wis.
Minneapolis-Moline Power
Implement Co., Box 1015,
Minneapolis 1, Minn.
Nordberg Mfg. Co., 3073 So.
Chase Ave., Milwaukee 7,
Wis. 22
The Sanderson-Cyclone Drill
Co., 157 S. Main St., Orr-
ville, Ohio.
Sterling Engine Co., 1270
Niagara St., Buffalo 13,
N. Y.

Superior Engine Div. Na-
tional Supply Co., Spring-
field, Ohio
Wisconsin Motor Corp., 1910
S. 53rd St., Milwaukee 14,
Wis. 155
Witte Eng. Works Div. of
Oil Well Supply Co., 1600
Oakland, Kansas City, Mo.
Worthington Pump & Mch.
Corp., Harrison, N. J.

ENGINES, Steam

Clyde Iron Works, Inc., 29
Ave. W. & Michigan St.,
Duluth 1, Minn.
DeLaval Steam Turbine Co.,
Trenton, N. J.
Flory Mfg. Co., Main St.,
Bangor, Penn.
Morris Machine Works, 31
E. Genesee St., Baldwins-
ville, N. Y. 151
Nordberg Mfg. Co., 3073 S.
Chase Ave., Milwaukee,
Wis. 22
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.

EXCAVATORS, Cableway Dragline (See Cable Excavators)

EXCAVATORS, Clamshell (See Cranes)

EXCAVATORS, Scraper (See Scrapers, Power Drain)

EXCAVATORS, Tractor- Mounted

Anthony Co., Inc., Streator,
Ill.
Athey Products Corp., 5631
W. 65th St., Chicago 38,
Ill.
Austin-Western Co., Auro-
ra, Ill.
Bucyrus-Erie Co., South
Milwaukee, Wis. 4th Cover
Hennecuse Eng. Co., 400
Monroe St., Marion, Ohio
The Frank G. Hough Co.,
E. Sunnyside Ave., Liber-
tyville, Ill.
Hi-Way Service Corp., 3857
W. Wisconsin Ave., Mil-
waukee, Wis.
Insley Mfg. Co., 801 N. Olney
St., Indianapolis, Ind.
LaPlant-Choate Mfg. Co.,
Inc., 2920 1st Ave., N.E.,
Cedar Rapids, Ia. 46
Lima Locomotive Works,
Inc., Shovel & Crane Div.,
1108 National Bank Bldg.,
Lima, Ohio.
Link-Belt Speeder Corp., 301
W. Pershing Rd., Chicago
9, Ill. 1
Southwest Welding & Mfg.
Co., 322 W. Mission Road,
Alhambra, Calif.
Spears-Wells Mchry. Co.,
1832 W. 9th St., Oakland 7,
Calif.
Trackson Co., Milwaukee 1,
Wis. 40

EXCAVATORS, Tower (See Cableways)

EXCAVATORS, Truck- Mounted (See Shovels, Truck-Mounted)

EXHAUSTERS

American Blower Corp., Box
58, Roosevelt Park Annex,
Detroit 32, Mich.
Buffalo Forge Co., P. O. Box
985, Buffalo 5, N. Y.
Chicago Pneumatic Tool Co.,
6 E. 44th St., New York
17, N. Y. 44
Clargie Fan Co., North &
Porter Sts., Kalamazoo 16,
Mich.
The Ducon Co., 259 Norman
Ave., Brooklyn 22, N. Y.
The Macleod Co., 2232-40
Bogen St., Cincinnati, Ohio

Morse Bros. Mchry. Co., 2900
Broadway, Denver 1, Colo.
Pangborn Corp., 120 Pang-
born Ave., Hagerstown,
Md.
Parsons Engr. Corp., 2546
E. 79th St., Cleveland 4,
Ohio
W. A. Riddell Corp., Bucy-
rus, Ohio.

EXPLOSIVES & DYNAMITE

American Cyanamid & Chem-
ical Corp., Explosive Dept.,
35 Rockefeller Plaza, New
York 20, N. Y. 34, 35
Atlas Powder Co., Wilming-
ton, Del.
Austin Powder Co., 758
Rockefeller Bldg., Clevela-
nd, Ohio.
E. I. DuPont de Nemours &
Co., Inc., Explosives Dept.,
N. W. Corner 10th & Mar-
ket Sts., Wilmington 98,
Del. 4
Equitable Powder Mfg. Co.,
East Alton, Ill.
Hercules Powder Co., 946
King St., Wilmington 99,
Del. 50
Illinois Powder Mfg. Co.,
730 Pierce Bldg., St. Louis
2, Mo.
Independent Explosives Co.,
455 Leader Bldg., Clevela-
nd 14, Ohio.
King Powder Co., 1703 First
National Bank Bldg., Cin-
cinnati, Ohio.
Liberty Powder Co., Div. of
F. W. Olin, 2218 Koppers
Bldg., Pittsburgh, Penn.
National Powder Co. R.F.D.,
Eldred, Penn.
Trojan Powder Co., 17 N.
7th St., Allentown, Penn.

FANS AND BLOWERS

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49, 51
American Blower Corp., Box
58, Roosevelt Park Annex,
Detroit, Mich.
Bayley Blower Co., 1817 S.
66th St., Milwaukee 14,
Wis.
Buffalo Forge Co., 490 Broad-
way, Buffalo 5, N. Y.
Clargie Fan Co., North &
Porter Sts., Kalamazoo 16,
Mich.
Connecticut Blower Co.,
Hartford, Conn.
Continental G'n Co., Indus-
trial Div., 4500 5th Ave.,
S., Birmingham, Ala. 13
Coppus Eng. Corp., 341 Park
Ave., Worcester, Mass.
DeLaval Steam Turbine Co.,
853 Nottingham Way,
Trenton 2, N. J.
The DeVilbiss Co., 300
Phillips Ave., Toledo 1,
Ohio.
Diamond Iron Works, Inc.,
1728 N. 2nd St., Minne-
apolis 11, Minn.
Emerson Electric Mfg. Co.,
1824 Washington Ave., St.
Louis 3, Mo.
Fisher Furnace Co., 5535 N.
Walcott Ave., Chicago 40,
Ill.
The Frank G. Hough Co.,
East Sunnyside Ave., Lib-
ertyville, Ill.
R. R. Howell Co., P. O. Box
264, Minneapolis, Minn.
Ideal Industries, Inc., Sycam-
ore, Ill.
Ingersoll-Rand Co., 11
Broadway, New York 4,
N. Y.
International Eng., Inc., 1145
Bolander, Dayton 1, Ohio
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 61
Kennedy-Van Saun Mfg. &
Eng. Co., 2 Park Ave.
Bldg., New York, N. Y. 14, 15
The Kirk & Blum Mfg. Co.,
2807 Spring Grove Ave.,
Cincinnati 25, Ohio.
The Macleod Co., 2232-40
Bogen St., Cincinnati, Ohio
Morse Bros. Mchry. Co., 2900
Broadway, Denver 1, Colo.

DIRECTORY

The Northern Blower Co., 6409 Barberton Ave., Cleveland 2, Ohio
Parsons Eng. Corp., 2545 E. 79th St., Cleveland 4, Ohio
Pratt-Daniel Corp., 84 S. Water St., E. Portchester, Conn.
Roots - Connersville Blower Corp., 11 Water St., Connersville, Ind.
Ruemelin Mfg. Co., 3860 N. Palmer St., Milwaukee 12, Wis.
Selas Corp. of America, Erie Ave. & D St., Philadelphia 34, Penn.
Simplicity System Co., Riverside Drive., Chattanooga, Tenn.
The Spencer Turbine Co., 486 New Park Ave., Hartford 6, Conn.
Sprout, Waldron, Muncy, Penn.
B. F. Sturtevant Co., 37 Readville St., Hyde Park, Boston, Mass.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
The Trane Co., 2nd & Cameron Ave., LaCrosse, Wis.

FASTENERS, Belt (See Belt Fasteners)

FEEDERS, APRON

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 53
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill., 46
Anderson Engr. Co., 225 Bent St., Cambridge 41, Mass.
Austin-Western Co., Aurora, Ill.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill., 16
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview, Columbus 7, Ohio, 189
The Bonnot Co., Mulberry Rd., S.E., Canton, Ohio
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala., 136
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The F. D. Cummer & Son Co., E. 17th and Euclid Ave., Cleveland 15, Ohio
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise Kan. 158
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y., 148
General Conveyor & Mfg. Co., 3601 Salina St., St. Louis 18, Mo.
Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn., 147
Iowa Mfg. Co., 916 - 16th St., N.E., Cedar Rapids, Ia., 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York 16, N. Y., 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
Link-Belt Co., 330 W. Pershing Road, Chicago 9, Ill., 1

Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
The McCarter Iron Wks., Inc., Mill & Washington Sts., Norristown, Penn.
McLanahan & Stone Corp., 200 Wall Street, Hollidaysburg, Penn., 159
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
E. F. Marsh Eng. Co., 4030 Chouteau Ave., St. Louis 10, Mo.
Morse Bros. Mchry. Co., P.O. Box 1708, Denver 1, Colo.
New Holland Mfg. Co., Mountville, Penn., 154
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis., 22
Pioneer Engr. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
W. A. Riddell Corp., 201 E. Warren, Bucyrus, Ohio
Robins Conveyors Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N.J. 56
Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
Ross Screen & Feeder Co., 19 Rector St., New York 6, N. Y.
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., 71
Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis., 11
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn., 7
Universal Road Machinery Co., 27 Emerick St., Kings-ton, N. Y., 159
Webster Manufacturing, Inc., Tiffin, Ohio
Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo. 27
Wisconsin Foundry & Machy. Co., 623 E. Main St., Madison 1, Wis.

FEEDERS (Concrete)

The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn., 147
Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill., 1
Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y., 71
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Synton Co., 450 Lexington Ave., Homer City, Penn., 150

FEEDERS (Flue Dust)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 53
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 147
Kennedy-Van-Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y., 14, 15
Manitowoc Engr. Wks., Manitowoc, Wis., 42
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., 71
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

FEEDERS (Proportioning)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 53
The Bonnot Co., Mulberry Rd., S. E., Canton, Ohio
Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
Builders-Providence Inc., 9 Coddling St., Providence, R. I.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The Deister Concentrator Co., 901-905 Glasgow Ave., Fort Wayne, Ind.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
Fuller Co., Fuller Bldg., Catasauqua, Penn., 24, 25
The Galigher Co., 48 S. Second East St., Salt Lake City 1, Utah, 140
General Conveyor & Mfg. Co., 3601 Salina St., St. Louis 18, Mo.
Hardinge Co., Inc., 240 Arch St., York, Penn., 147
Hills-McCanna Co., 2349 Nelson St., Chicago 18, Ill.
Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York City 16, N. Y., 15
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill., 1
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
Merrick Scale Mfg. Co., 180 Autumn St., Passaic, N.J. 155
Omega Machine Co., Div. of Builders Iron Foundry, 22 Coddling St., Providence, Rhode Island
Richardson Scale Co., Clifton, N. J.
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., 71
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Synton Co., 450 Lexington Ave., Homer City, Penn., 150

FEEDERS (Reciprocating)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 53
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Ajax Flexible Coupling Co., Inc., 2 English St., Westfield, N. Y.
Anderson Engineering Co., 237 Bent St., Cambridge 41, Mass.
Austin-Western Co., Aurora, Ill.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill., 16
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Bonnot Co., Mulberry Rd., S. E., Canton, Ohio
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala., 136
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The F. D. Cummer & Son Co., E. 17th and Euclid Ave., Cleveland 15, Ohio
Deister Machine Co., 1933 E. Wayne St., Fort Wayne, Ind., 149
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan. 158
The Galigher Co., 48 S. Second East St., Salt Lake City 1, Utah, 140

General Conveyor & Mfg. Co., 3601 Salina St., St. Louis 18, Mo.
George Haiss Mfg. Co., Inc., 391 Canal St., New York 51, N. Y.
Hills-McCanna Co., 2349 Nelson St., Chicago 18, Ill.
Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia., 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York 16, N. Y., 14, 15
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill., 1
Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn., 139
Millville Iron Wks., Sixth & Florence Ave., Millville, N. J.
New Holland Mfg. Co., Mountville, Pa., 154
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis., 22
Omega Machine Co., Div. of Builders Iron Foundry, 22 Coddling St., Providence 1, R. I.
Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia, Pa., 72
Pioneer Engr. Works Inc., 1515 Central Ave., Minneapolis 13, Minn.
W. A. Riddell Corp., Bucyrus, Ohio
Robins Conveyors Inc. (Div. of Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J., 56
Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
F. L. Smidth, 11 W. 42nd St., New York 18, N. Y., 71
Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis., 11
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif., 28
Synton Co., 450 Lexington Ave., Homer City, Penn., 150
Traylor Engr. & Mfg. Co., 10th & Harrison Sts., Allentown, Penn., 7
Webster Mfg. Co., Tiffin 16, Ohio.
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

FEEDERS (Screw)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 53
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
The Babcock & Wilcox Co., 85 Liberty St., New York 6 N. Y., 74
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Bonnot Co., Mulberry St., Canton 2, Ohio
Butler Bin Co., Waukesha, Wis.
Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala., 136
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The Deister Concentrator Co., 901-935 Glasgow Ave., Fort Wayne, Ind.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146

DIRECTORY

The J. B. Ehrsam & Sons
Mfg. Co., Enterprise Kan. 158
General Conveyor & Mfg.
Co., 3601 Salina St., St.
Louis 18, Mo.
Groch Engr. Co., 628 W. 9th
St., Los Angeles 15, Calif.
Hetzel Steel Form & Iron
Co., 1750 Thomas Rd.,
Warren, Ohio.
R. R. Howell Co., P. O. Box
264, Minneapolis, Minn.
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
The C. S. Johnson Co., P.O.
Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. &
Engr. Co., 2 Park Ave.
Bldg., New York 16, N. Y.
15
Lewistown Foundry & Ma-
chine Co., 16 Elizabeth St.,
Lewistown, Penn.
Link-Belt Co., 330 W. Per-
shing Rd., Chicago 9, Ill. 1
Pioneer Eng. Works, Inc.
1515 Central Ave., Minne-
apolis 13, Minn.
F. L. Smith & Co., 11 W.
42nd St., New York 18,
N. Y. 71
Screw Conveyor Corp., 700
Hoffman St., Hammond, Ind.
Sprout, Waldron, Muncy,
Penn.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill. 28
Straub Mfg. Co., 507 Chest-
nut St., Oakland 7, Calif.
Traylor Engr. & Mfg. Co.,
Allentown, Penn. 7
Webster Mfg., Inc., Tiffin,
Ohio

FEEDERS (Table)

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49, 53
Alpha Tank & Sheet Metal
Mfg. Co., 5001 S. 38th St.,
St. Louis 16, Mo.
The Babcock & Wilcox Co.,
85 Liberty St., New York,
N. Y. 74
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Continental Gin Co., Indus-
trial Div., 4500 5th Ave. S.,
Birmingham, Ala. 136
The Conveyor Co., Inc., 3260
E. Slauson Ave., Los An-
geles 11, Calif.
The Delster Concentrator
Co., 915 Glasgow Ave.,
Fort Wayne 1, Ind.
Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y. 14, 15
Link-Belt Co., 330 Pershing
Rd., Chicago 9, Ill. 1
Nordberg Mfg. Co., 3083 S.
Chase Ave., Milwaukee 7,
Wis. 22
Omega Machine Co., 9 Cod-
ding St., Providence 1,
R. I.
F. L. Smith & Co., 11 W.
42nd St., New York 18,
N. Y. 71
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill. 28
Traylor Engr. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn. 7
Williams Patent Crusher &
Pulverizer Co., 2701 N.
Broadway, St. Louis 6, Mo. 27

FEEDERS (Weighing)

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49, 53
Bonded Scale Co., 41 Bell-
view, Columbus 7, Ohio 189
Builders - Providence, Inc.,
9 Codding St., Providence
1, R. I.
Chain Belt Co., 1600 W.
Bruce St., Milwaukee, Wis.
The Conveyor Co., Inc., 3260
E. Slauson Ave., Los An-
geles 11, Calif.

Groch Engr. Co., 628 W. 9th
St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y. 14, 15
Lime & Hydrate Plants Co.,
232 E. Poplar St., York,
Penn.
Link-Belt Co., 330 W. Per-
shing Rd., Chicago 9, Ill. 1
Merrick Scale Mfg. Co., 180
Autumn St., Passaic, N.J.
Omega Machine Co., Div. of
Builders Iron Foundry, 22
Codding St., Providence,
R. I.
Richardson Scale Co., Clif-
ton, N. J.
Schaffer Poldometer Co.,
2528 Smallman St., Pitts-
burgh 22, Penn.
Stephens-Adamson Mfg. Co.,
7 Ridgeway, Aurora, Ill.
Syntron Co., 450 Lexington
Ave., Homer City, Penn. 150

FENCING, Wire

The American Rolling Mill
Co., 703 Curtis Street,
Middletown, Ohio.
American Steel & Wire Co.,
Rockefeller Bldg., Cleve-
land 13, Ohio
Bethlehem Steel Corp., 701
East Third St., Bethlehem,
Penn. 65
The California Wire Cloth
Corp., 1001 22nd Ave.,
Oakland, Calif. 20
Colorado Fuel & Iron Corp.,
P. O. Box 1920, Denver 1,
Colo.
Columbia Steel Co., Russ
Bldg., San Francisco 6,
Calif.
Page Steel & Wire Div.,
American Chain & Cable
Co., Inc., Monessen, Penn.
Pittsburgh Steel Co., 1600
Grant Bldg., Pittsburgh
30, Penn.
Republic Steel Co., Republic
Bldg., Cleveland, Ohio
John A. Roebling's Sons Co.,
640 S. Broad St., Trenton
2, N. J. 17
Tennessee Coal, Iron & Rail-
road Co., Brown-Marx
Bldg., Birmingham 2, Ala.

FILTER CLOTH, Slurry Filters

Buffalo Wire Wks. Co., 308-
332 Terrace, Buffalo, N. Y.
Cleveland Wire Cloth & Mfg.
Co., 3573 E. 78th St., Cleve-
land 5, Ohio
Filter Media Corp., Irving-
ton-on-Hudson, N. Y.
The Ludlow-Saylor Wire Co.,
Newstead Ave., & Wabash
R.R., St. Louis 10, Mo. 302
The Multi-Metal Wire Cloth
Co., 1350 Garrison Ave.,
New York 59, N. Y.
Newark Wire Cloth Co.,
354 Verona Ave., Newark
4, N. J.
Oliver United Filters, Inc.,
33 W. 42nd St., New York
18, N. Y.
John A. Roebling's Sons Co.,
640 S. Broad, Trenton 2,
N. J. 17
The W. S. Tyler Co., 3615
Superior Ave., Cleveland
14, Ohio 287

FILTERS, Cement Slurry

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49, 53
Bird Machine Co., Rucaduc
Rd., S. Walpole, Mass.
Denver Equipment Co., 1400
17th St., Denver 17, Colo. 146
The Dorr Co., 570 Lexington
Ave., New York 22, N.Y. 54
The Elmco Corp., P. O. Box
300, Salt Lake City 8, Utah
Filter Media Co., River Rd.,
Irvington-on-Hudson, N. Y.
Manitowoc Engr. Works,
Manitowoc, Wis. 42

Morse Bros. Machinery Co.,
P. O. Box 1708, Denver 1,
Colo.
Oliver United Filters, Inc.,
33 W. 42nd St., New York
18, N. Y.

FILTERS (Engine, Oil and Air)

Alr-Maze Corp., 5200 Harvard
Ave., Cleveland 5, Ohio.
American Air Filter Co., Inc.,
215 Central Ave., Louisville
8, Ky. 52
Eriggs Clarifier Co., 1339
Wisconsin Ave., N. W.,
Washington 7, D. C.
Dollinger Corp. (Formerly
Staynew Filter Corp.), 11
Centre Park, Rochester 4,
N. Y.
The Hillard Corporation, 401
W. Fourth St., Elmira,
N. Y.
Independent Pneumatic Tool
Co., 600 W. Jackson Blvd.,
Chicago 6, Ill.
Staples & Pfeiffer, 528 Bry-
ant St., San Francisco 7,
Calif.
The Trane Co., LaCrosse,
Wis.
W.G.B. Oil Clarifier, Inc.,
100 Greenkill Ave., Kings-
ton, N. Y.
Wlx Accessories Corp., Ozark
St., Gastonia, N. C.

FIRE BRICK, Kiln Liners, etc. (See also Brick)

The Babcock & Wilcox Co.,
85 Liberty St., New York
6, N. Y. 74
Bofield Refractories Co.,
777 S. Swanson St., Phil-
adelphia 47, Pa.
The Carborundum Co., Nlag-
ara Falls, N. Y.
The Denver Fire Clay Co.,
P. O. Box 5510, Denver
17, Colo.
General Refractories Co.,
1600 Real Estate Trust
Bldg., Philadelphia, Penn.
A. P. Green Fire Brick Co.,
Mexico, Mo.
Harblison-Walker Refrac-
tories Co., 1800 Farmers
Bank Bldg., Pittsburgh 22,
Penn.
Johns-Manville, 22 E. 40th
St., New York 16, N. Y.
Laclede-Christy Clay Pro-
ducts Co., Ambassador
Bldg., St. Louis 1, Mo.
E. J. Lavino & Co., 1528
Walnut St., Philadelphia
2, Penn.
Mexico Refractories Co.,
Love & Cole Sts., Mexico,
Mo.
The Permanente Products
Co., 1712 First Circle
Tower Bldg., Akron, Ohio
Quigley Co., 527 Fifth Ave.,
New York 17, N. Y.
Stockton Fire Brick Co.,
1267 Russ Bldg., 235 Mont-
gomery St., San Fran-
cisco, Calif.
Universal Zonolite Insula-
tion Co., 135 S. LaSalle
St., Chicago 3, Ill.
Walsh Refractories Corp.,
4070 N. First St., St. Louis
7, Mo.

FIRE EXTINGUISHERS

American-LaFrance-Foamite
Corp., Elmira, N. Y.
Boyer-Campbell Co., 6540
Antoine St., Detroit 2,
Mich.
Cardox Corp., 307 N. Mich-
igan Ave., Chicago 1, Ill.
Pulmosan Safety Equipment
Corp., 176 Jackson St.,
Brooklyn 1, N. Y.

FIRST AID EQUIPMENT AND MATERIALS

Boyer-Campbell Co., 6540
Antoine St., Detroit 2,
Mich.
John W. Breck, Inc., 115
Dwight St., Springfield,
Mass.

E. D. Bullard Co., 275 8th
St., San Francisco 3, Calif.
Davis Emergency Equip. Co.,
Inc., 45 Halleck St., New-
ark 4, N. J.
The Industrial Products Co.,
2705 N. Fourth St., Phila-
delphia 33, Penn.
Mine Safety Appliances Co.,
Braddock, Thomas & Meade
St., Pittsburgh 8, Penn.
Pulmosan Safety Equipment
Corp., 176 Johnson St.,
Brooklyn 1, N. Y.

FLEXIBLE COUPLINGS

Ajax Flexible Coupling Co.,
Inc., 116 Portage Rd.,
Westfield, N. Y.
Bodinson Mfg. Co., Inc., 2401
Bayshore Blvd., San Fran-
cisco 24, Calif.
Chain Belt Co., 1649 W. Bruce
St., Milwaukee 4, Wis.
Continental Gin Co., Indus-
trial Div., 4500 5th Ave. S.,
Birmingham, Ala. 136
Crocker-Wheeler Electric
Mfg. Co., Div. of Joshua
Hendy Iron Wks., Am-
père, N. J.
DeLaval Steam Turbine Co.,
853 Nottingham Way,
Trenton 2, N. J.
Diamond Chain & Mfg. Co.,
520 Kentucky Ave., Indian-
apolis 7, Ind.
Diamond Iron Wks., Inc.,
and The Mahr Mfg. Co.
Div., 1800 N. 2nd St., Min-
neapolis 11, Minn.
Drinkwater, Inc., 2323 S.
Michigan Ave., Chicago 16,
Ill.
The J. B. Ehrsam & Sons
Mfg. Co., Enterprise Kan. 158
Falk Corp., 3001 W. Canal
St., Milwaukee 8, Wis.
Farrel-Birmingham Co.,
Inc., Ansonia, Conn.
Fast Coupling, Div. Bartlett-
Hayward, Koppers Bldg.,
Pittsburgh 19, Penn.
Goodall Rubber Co., 5 S.
36th St., Philadelphia 4,
Penn.
Joshua Hendy Iron Wks.,
Box 37, Sunnyvale, Calif.
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
W. A. Jones Fdy. & Machine
Co., 4401 Roosevelt Rd.,
Chicago 24, Ill.
Kent Machine Co., Cuyahoga
Falls, Ohio 187
Link-Belt Co., 2045 W.
Hunting Park Ave., Phil-
adelphia 40, Penn. 1
Lovejoy Flexible Coupling
Co., 5037 W. Lake St., Chi-
cago 44, Ill.
Meckum Engr. Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
The Medart Co., 100 Potomac
St., St. Louis 18, Mo.
Philadelphia Gear Wks., Inc.,
Erie Ave. and G St., Phila-
delphia 34, Penn.
Robins Conveyors Inc., (Div.
of Hewitt-Robins, Inc.),
270 Passaic Ave., Passaic,
N. J. 56
Winfield H. Smith, Inc., 1000
Rockland Ave., Springfield,
N. Y.
Stephens-Adamson Mfg. Co.,
7 Ridgeway, Aurora, Ill.
Stow Mfg. Co., Inc., 443 State
St., Binghamton, N. Y.
United States Rubber Co.,
1230 6th Ave., New York
20, N. Y.
T. B. Wood's Sons Co., 1325
5th Ave., Chambersburg,
Penn.

FLOORING, Industrial, Iron and Steel

Armco Drainage & Metal
Products, Inc., 703 Curtis
Street, Middletown, Ohio
Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh
22, Penn. 160
Carnegie-Illinois Steel Corp.,
Carnegie Bldg., Pittsburgh
30, Penn.

DIRECTORY

Dobbie Fdy. & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
 Dravo Corp., Neville Island, Pittsburgh 25, Penn.
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
 Johns-Manville, 22 East 40th St., New York 16, N. Y.
 Republic Steel Corp., Republic Bldg., Cleveland, Ohio
 Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80 Ill. 6
 Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
 Truscon Steel Co., Albert St., Youngstown, Ohio
 Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y. 20

FLOORING SYSTEMS (Concrete)

American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio
 Cities Fuel & Supply Co., 6639 W. National Ave., West Allis 14, Wis.
 Flexicore Co., Inc., 220 E. 42nd St., New York, N. Y.

FLOTATION EQUIPMENT

The Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
 The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
 Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
 The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo.
 Morse Bros. Machinery Co., P.O. Box 1708, Denver 1, Colo.
 Separation Process Co., Fuller Bldg., Catasauqua, Penn.
 F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y. 71
 Smith & Serrell, Inc., 15 Washington St., Newark 2, N. J.
 Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
 The Stearns-Roger Mfg. Co., 1718-1722 California St., Denver 2, Colo.
 Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif. 28
 Western Machinery Co., 760 Folsom St., San Francisco, Calif.

FLOTATION REAGENTS & SUPPLIES

Armour Chemical Div., Armour & Co., 1355 W. 31st St., Chicago 9, Ill.
 The Denver Equipment Co., 1400 17th St., Denver 17, Colo. 146
 The Dow Chemical Co., Midland, Mich.
 E. I. DuPont de Nemours & Co., Nemours Bldg., Wilmington 98, Del. 66
 The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
 Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
 Hercules Powder Co., 946 King St., Wilmington 99, Del. 55
 Separation Process Co., Fuller Bldg., Catasauqua, Penn.
 Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28

FORMS, Concrete Burial Vaults (See Burial Vault Forms)

FORMS, Concrete, Miscellaneous Ornamental

Bethlehem Steel Co., Bethlehem, Penn. 65
 Wm. Bros. Boiler & Mfg. Co., 1057 10th Ave. S.E., Minneapolis 14, Minn.
 W. E. Dunn Mfg. Co., Holland, Mich.
 Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
 The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 Holystone Co., N. Hollywood, Calif. 166
 The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
 Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
 Multiplex Concrete Machinery Co., Elmore, Ohio. 163
 Noble Co., 1869 7th St., Oakland 7, Calif.
 Quinn Wire & Iron Wks., Boone, Iowa
 Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill. 6
 Wilson System of Prefabrication, 253 S. Hoover St., Los Angeles 4, Calif.

FROGS AND SWITCHES, Railway

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
 Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn. 65
 C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver, Colo.
 Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 19, Penn.
 The Central Frog & Switch Co., Station O, Box 9, Cincinnati, Ohio
 The Chase Fdy. & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
 L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Penn.
 The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
 Midwest Steel Corp., P.O. Box 271, Charleston 21, W. Va.
 Pacific Car & Fdy. Co., 4th and Factory St., Renton, Wash.
 Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
 Pressed Steel Car Co., Inc., Indus. Div., 2500 Koppers Bldg., Pittsburgh 30, Penn.
 Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
 Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

FURNACES, Forging

The Denver Fire Clay Co., P. O. Box 5510, Denver 17, Colo.
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Macleod Co., 2232-40 Bogen St., Cincinnati, Ohio
 The Wellman Eng. Co., 7000 Central Ave., Cleveland 4, Ohio 157
 Worthington Pump & Machinery Corp., 744 Broad St., Newark 2, N. J.

FUSES, Detonating & Blasting (See Blasting Caps, Blasting Supplies)

GARBAGE RECEPTACLE MOLDS, Concrete

Flint & Walling Mfg. Co., Inc., Kendallville, Ind.

GARDEN FURNITURE MOLDS, Concrete

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
 Multiplex Concrete Machinery Co., Elmore, Ohio. 163
 W. E. Dunn Mfg. Co., Holland, Mich.

GAS ANALYZERS AND RECORDERS

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio
 Burrell Technical Supply Co., 1936-42 5th Ave., Pittsburgh 19, Penn.
 Cambridge Instrument Co., Inc., 3010 Grand Central Terminal, New York 17, N. Y.
 Davis Emergency Equipment Co., Inc., 45 Halleck St., Newark 4, N. J.
 Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.
 Chas. Engelhard, Inc., 90 Passaic Ave., East Newark, N. J.
 Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Penn.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 The Hays Corp., 642 8th St., Michigan City, Ind.
 Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
 Mines Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Penn.
 F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71

GAS PRODUCERS

Koppers Co., Inc., Koppers Bldg., Pittsburgh 19, Penn.
 Lime & Hydrate Plants Co., P.O. Box 1387, York, Penn.
 The Wellman Eng. Co., 7000 Central Ave., Cleveland 4, Ohio 157
 R. D. Wood Co., Public Ledger Bldg., Independence Square, Philadelphia 5, Penn.

GASOLINE ENGINES

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Allis-Chalmers Tractor Div., Main Office, Milwaukee 1, Wis. 13
 Briggs & Stratton Corp., 2711 N. 13th St., Milwaukee 1, Wis.
 The Buda Co., 15401 Commercial Ave., Harvey, Ill.
 Caterpillar Tractor Co., W. Washington, Peoria 8, Ill.
 Climax Eng. Co., 1812 S. 4th St., Clinton, Iowa
 Continental Motors Corp., Detroit, Mich.
 Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 Hercules Motors Corp., 11th St., S. E., Canton Ohio
 International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill. 23
 LeRoi Co., 1706 S. 68th St., Milwaukee 14, Wis.
 Locomotive Div., The Aviation Corp., 652 Oliver St., Williamsport, Penn.
 Mack-International Motor Truck Corp., Empire State Bldg., New York 1, N. Y.
 Minneapolis-Moline Power Implement Co., Box 1015, Minneapolis 1, Minn. 32
 Novo Engine Co., 702 Porter St., Lansing, Mich.
 Salsbury Motors, Inc., 1201 Lexington, Pomona, Calif.
 The Sanderson-Cyclone Drill Co., 157 S. Main St., Orrville, Ohio
 Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y.

Waukesha Motor Co., P. O. Box 379, Waukesha, Wis.
 Wisconsin Motor Corp., 1810 S. 53rd St., Milwaukee 14, Wis. 155
 Witte Engine Works, Div. of Oil Wells Supply Co., 1600 Oakland Ave., Kansas City 3, Mo.

GATES (See Bin Gates and Chutes)

GEAR-MOTORS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco, Calif.
 Century Electric Co., 1806 Pine St., St. Louis 3, Mo.
 Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Crocker-Wheeler Elec. Mfg. Co., Div. of Joshua Hendy Iron Works, Ampere, East Orange, N. J.
 Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 Falk Corp., 3001 W. Canal St., Milwaukee 8, Wis.
 Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Foote Bros. Gear & Machine Corp., 5225 S. Western Blvd., Chicago 9, Ill.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 D. O. James Mfg. Co., 1140 W. Monroe St., Chicago, Ill.
 Janette Mfg. Co., 556 W. Monroe St., Chicago 6, Ill.
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn. 1
 Minneapolis-Moline Power Implement Co., Box 1050, Minneapolis 1, Minn.
 Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
 Philadelphia Gear Works, Inc., Erie Ave. & G St., Philadelphia 34, Penn.
 Reliance Electric & Engr. Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio.
 Sterling Electric Motors, Inc., 6401 Anaheim-Telegraph Rd., Los Angeles 22, Calif.
 U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles 54, Calif.
 Winfield H. Smith, Inc., Springfield, Erie County, N. Y.
 Western Gear Works, 417 Ninth, South, Seattle 4, Wash.
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

GEAR REDUCERS

Abart Gear & Machine Co., 4834 W. 16th St., Chicago 50, Ill.
 Atlantic Gear Works Inc., 200 Lafayette St., New York 12, N. Y.
 The Cleveland Worm & Gear Co., 3249 East 80th St., Cleveland 1, Ohio
 Continental Gin Co., Industrial Div., 4500 5th Ave. So. Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 The Dayton Rubber Mfg. Co., P.O. Box 1004, Dayton 1, Ohio
 DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
 Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
 Falk Corp., 3001 W. Canal St., Milwaukee 8, Wis.
 Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Farrell-Birmingham Co., Inc., Ansonia, Conn.

DIRECTORY

Foot Bros. Gear & Machine Corp., 5225 S. Western Blvd., Chicago 9, Ill.
 Fuller Mfg. Co., Kalamazoo, Mich.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
 Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
 Graham Transmission Inc., 3754 N. Holton St., Milwaukee 12, Wis.
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia., 67
 Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 D. O. James Mfg. Co., 1140 W. Monroe St., Chicago, Ill.
 Janette Mfg. Co., 556 W. Monroe St., Chicago 6, Ill.
 W. A. Jones Foundry & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
 Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn. 1
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 The Medart Co., 100 Potomac St., St. Louis 18, Mo.
 Mich. Tool Co., Cone-Drive Div., 7171 E. McNichols Rd., Detroit 12, Mich.
 Moore Steam Turbine Co., Willsville, N. Y.
 Morse Bros. Mchry. Co., 2900 Broadway, Denver 1, Colo.
 Ottumwa Iron Works, 402 W. Main St., Ottumwa, Iowa
 Pacific Car & Fdy. Co., 4th and Factory St., Renton, Wash.
 Palmer-Bee Co., 1753 Poland Ave., Detroit, Mich.
 Philadelphia Gear Works, Inc., Erie Ave. & G St., Philadelphia 34, Penn.
 Rogers Iron Wks., Co., 11th & Pearl, Joplin, Mo.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 W. N. Field E. Smith, Inc., Springfield, Erie County, N. Y.
 The Webb Corp., 402 E. Broadway, Webb City, Mo.
 Weston Gear Works, 417 Ninth, South, Seattle 4, Wash.
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.
 Witte Engine Works, Div. of Oil Well Supply Co., 1600 Oakland Ave., Kansas City 3, Mo.
 Worthington Pump & Machinery Corp., Harrison, N. J.

GEARS

Abart Gear & Machine Co., 4834 W. 16th St., Chicago 50, Ill.
 American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
 Atlantic Gear Works Inc., 200 Lafayette St., New York 12, N. Y.
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
 Birdsboro Steel Foundry & Machine Co., 1941 Furnace St., Birdsboro, Penn.
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
 The Cleveland Worm & Gear Co., 3249 E. 80th St., Cleveland 1, Ohio
 Continental Gin Co., Industrial Div., 4500 5th Ave., So. Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 DeLaval Steam Turbine Co., 723 Nottingham Way, Trenton 2, N. J.

Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis, Minn.
 Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
 The J. B. Ehsam & Sons Mfg. Co., Enterprise, Kan. 158
 Erie Steel Foundry Co., Portland, Ore.
 Falk Corp., 3001 W. Canal St., Milwaukee 8, Wis.
 Farrel-Birmingham Co., Inc., Ansonia, Conn.
 Farrel-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio
 Foot Bros. Gear & Machine Corp., 5225 S. Western Blvd., Chicago 9, Ill.
 Fuller Mfg. Co., Kalamazoo, Mich.
 Gears & Forgings, Inc. (Ohio Forge & Machine Co.), 3012 Woodhill Rd., Cleveland, Ohio
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
 Graham Transmissions, Inc., 3754 N. Holton St., Milwaukee 12, Wis.
 Greenville Mfg. Works, Greenville, Ohio
 R. R. Howell Co., P.O. Box 264, Minneapolis, Minn.
 Industrial Gear Mfg. Co., 4544 Van Buren St., Chicago 24, Ill.
 D. O. James Mfg. Co., 1140 W. Monroe St., Chicago, Ill.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 W. A. Jones Foundry & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
 Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y. 15
 Link-Belt Co., 2045 West Hunting Park Ave., Philadelphia 40, Penn. 1
 McLanahan & Storie Corp., 200 Wall St., Hollidaysburg, Penn. 139
 McNally-Pittsburg Mfg. Corp., Pittsburg, Kan.
 Maddox Fdry. & Machine Works, Archer, Fla.
 The Medart Co., 100 Potomac St., St. Louis 18, Mo.
 Minneapolis - Moline Power Implement Co., Box 1050, Minneapolis 1, Minn.
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 Ottumwa Iron Works, 402 W. Main St., Ottumwa, Iowa
 Pacific Car & Foundry Co., Factory Sts., Renton, Wash.
 Palmer-Bee Co., Detroit, Mich.
 Philadelphia Gear Works, Inc., Erie Ave. & G St., Philadelphia 34, Penn.
 Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 55
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 Winfield E. Smith, Inc., Springfield, Erie County, N. Y.
 Salisbury Motors, Inc., 1201 Lexington, Pomona, Calif.
 Standard Transmission Equipment Co., 3407 Verdugo Road, Los Angeles 41, Calif.
 The Stearns-Roger Mfg. Co., 1720 Calif. St., Denver 2, Colo.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Stroh Process Steel Co., 1428 High St., Pittsburgh, Penn.
 Taylor-Wharton Iron & Steel Co., High Br. dge., N. J. 137
 The Tool Steel Gear & Pinion Co., 211 Township Ave., Cincinnati 16, Ohio.
 Traylor Eng. & Mfg. Co., Allentown, Penn. 7
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

Webb Corp., 402 E. Broadway, Webb City, Mo.
 Webster Mfg., Inc., Tiffin, Ohio.
 Western Gear Works, 417 Ninth, South, Seattle 4, Wash.
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.
 T. B. Woods Sons Co., Fifth Ave., Chambersburg, Penn.

GENERATOR SETS (Diesel-Electric)

The Buda Co., 15428 Commercial Ave., Harvey, Ill.
 Caterpillar Tractor Co., Peoria 8, Illinois 41
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y. 44
 Climax Industries Inc., 1810 S. 4th St., Clinton, Iowa
 Construction Mchry. Co., Glenwood & Vinton, Waterloo, Ia.
 Continental Motors Corp., Muskegon, Mich.
 The Cooper-Bessemer Corp., Sandusky St., Mt. Vernon, Ohio
 Crocker - Wheeler Electric Mfg. Co., Div. of Joshua Hendy Iron Works, Ampere, East Orange, N. J.
 Cummins Engine Co., 5th & Wilson Sts., Columbus, Ind.
 Davey Compressor Co., Maple & Walnut Sts., Kent, Ohio
 Detroit Diesel Engine Div., General Motors Corp., 13400 West Outer Drive, Detroit 23, Mich.
 Enterprise Engine & Fdry. Co., 18th & Florida Sts., San Francisco 10, Calif.
 Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 Ingersoll - Rand Co., 11 Broadway, New York 4, N. Y.
 International Diesel Electric Co., Inc., 13-02 44th Ave., Long Island City 1, N.Y.
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia. 67
 Lester-Blackstone Inc., 1706 S. 68th St., Milwaukee 14, Wis.
 Moore Steam Turbine Co., Willsville, N. Y.
 Morse Bros. Mchry. Co., 2900 Broadway, Denver 1, Colo.
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
 R. H. Sheppard Co., Philadelphia St., Hanover, Penn.
 Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y.
 Superior Engine Div., National Supply Co., Springfield, Ohio
 Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio.
 T. B. Woods Sons Co., Fifth Ave., Chambersburg, Penn.
 Witte Eng. Wks. Div. of Oil Well Supply Co., 1600 Oakland, Kansas City, Mo.
 Worthington Pump & Mchry. Co., 37 Appleton St., Holyoke, Mass.

GENERATOR SETS (Gasoline)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 The Buda Co., 15401 Commercial Ave., Harvey, Ill.
 Climax Industries, Inc., 1810 S. 4th St., Clinton, Iowa
 Crocker-Wheeler Elec. Mfg. Co., Div. of Joshua Hendy Iron Works, Ampere, East Orange, N. J.

Davey Compressor Co., Walnut & Maple Sts., Kent, Ohio.
 Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 International Diesel Electric Co., Inc., 13-02 44th Ave., Long Island City 1, N. Y.
 LeRoi Co., 1706 S. 68th Ave., Milwaukee 14, Wis.
 Novo Engine Co., 702 Porter St., Lansing, Mich.
 Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y.
 Sterling Mchry. Corp., 411 Southwest Blvd., Kansas City, Mo.
 Syntrol Co., 450 Lexington Ave., Horner City, Penn. 150
 Universal Motor Co., 186 Harrison St., Oshkosh, Wis.
 Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Waukesha Motor Co., Box 379, Waukesha, Wis.

GENERATOR SETS, Electric Motor

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Louis Allis Co., 427 E. Steward St., Milwaukee 7, Wis.
 Burke Electric Co., 12th & Cranberry, Erie, Penn.
 Century Electric Co., 1806 Pine St., St. Louis 3, Mo.
 Crocker-Wheeler Electric Mfg. Co., Div. of Joshua Hendy Iron Works, Ampere, East Orange, N. J.
 Electric Machinery Mfg. Co., 1331 N. E. Tyler St., Minneapolis 13, Minn.
 Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 The Ideal Electric & Mfg. Co., East First & Oak, Mansfield, Ohio
 Janette Mfg. Co., 556 W. Monroe St., Chicago 6, Ill.
 Morse Bros. Mchry. Co., 2900 Broadway, Denver 1, Colo.
 Reliance Electric & Eng. Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

GENERATOR SETS, Turbine

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Crocker-Wheeler Electric Mfg. Co., Div. of Joshua Hendy Iron Works, Ampere, N. J.
 DeLaval Steam Turbine Co., 723 Nottingham Way, Trenton 2, N. J.
 Electric Machinery Mfg. Co., 1331 N. E. Tyler St., Minneapolis 13, Minn.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
 Ingersoll - Rand Co., 11 Broadway, New York 4, N. Y.
 Moore Steam Turbine Co., Willsville, N. Y.
 Morse Bros. Machinery Co., Broadway, Denver 1, Colo.
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.
 Worthington Pump & Machinery Corp., 37 Appleton St., Holyoke, Mass.

GOOGLES, Safety (See Safety Equipment)

DIRECTORY

GRAPPLES

| | |
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| American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill., | 45 |
| Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn., | 160 |
| Bucyrus-Erie Co., South Milwaukee, Wis., | 4th Cover |
| The Owen Bucket Co., 6001 Breakwater Ave., Cleveland 2, Ohio, | 288 |
| The Wellman Eng. Co., 7000 Central Ave., Cleveland 4, Ohio, | 157 |

GREASE CUPS

| | |
|---|----|
| Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn., | |
| Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind., | 1 |
| Robins Conveyors Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Avenue, Passaic, N. J., | 56 |

GREASE (See Lubricants)

GRINDERS, for Detachable Bits

| | |
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| Ingersoll - Rand Co., 11 Broadway, New York 4, N. Y., | |
| The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo., | |

GRINDING AIDS, Cement

| | |
|---|--|
| The Carborundum Co., P. O. Box 337, Niagara Falls, N. Y., | |
| Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass., | |
| Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md., | |

GRINDING MEDIA, Mills (Also see Grinding Pebbles)

| | |
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| Abbe Eng. Co., 54 Church St., New York, N. Y., | |
| Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., | 53 |
| American Forge Co., Berkeley, Calif., | |
| The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio, | |
| The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y., | 74 |
| Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn., | |
| Coates Steel Products Co., Greenville, Ill., | |
| Colorado Fuel & Iron Corp., P.O. Box 1920, Denver 1, Colo., | |
| Denver Equipment Co., 1400 17th St., Denver 17, Colo., | 146 |
| Hardinge Co., Inc., 240 Arch St., York, Penn., | 147 |
| International Engr., Inc., Bolander Ave., Dayton 1, Ohio, | |
| Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y., | 15 |
| Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn., | |
| National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio, | |
| Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn., | 72 |
| H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn., | |
| F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., | 71 |
| Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn., | 7 |

GRINDING MILL CONTROLS, Feed Regulators

| | |
|--|-----|
| Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., | 53 |
| Bradley Pulverizer Co., 123 S. Third St., Allentown, Penn., | 146 |
| Buffalo Hammer Mill Co., 27 Washington St., Buffalo 3, N. Y., | |
| Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo., | 64 |
| Hardinge Co., Inc., 240 Arch St., York, Penn., | 147 |
| International Engr., Inc., Bolander Ave., Dayton 1, Ohio, | |
| Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y., | 15 |
| The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo., | |
| Mosher Electronic Controls, 130 W. 42nd St., New York 18, N. Y., | |
| Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn., | 72 |
| F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., | 71 |

GRINDING PEBBLES

| | |
|---|-----|
| Abbe Eng. Co., 54 Church St., New York, N. Y., | |
| Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., | 53 |
| American Forge Co., Berkeley, Calif., | |
| Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y., | 74 |
| Hardinge Co., Inc., 240 Arch St., York, Penn., | 147 |
| Jasper Stone Co., Sioux City, Iowa, | |
| Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y., | 15 |
| Patterson Fdry. & Mach. Co., E. Liverpool, Ohio, | |
| H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn., | |
| F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., | 71 |
| Wehenn Abrasives Co., 811 W. Jackson Blvd., Chicago, Ill., | |

GRIZZLIES

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| Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., | 53 |
| Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo., | |
| American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill., | 45 |
| Austin-Western Co., Aurora, Ill., | |
| Electric Steel Foundry, 2141 N.W., 25th Ave., Portland 10, Ore., | |
| The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio, | |
| The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif., | |
| Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn., | |
| Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y., | 148 |
| The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah, | 140 |
| George Halss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y., | |
| Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn., | 156 |
| Joshua Hendy Iron Wks., Box 37, Sunnysvale, Calif., | |
| Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia., | 67 |
| Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16 Ohio, | 63 |
| Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y., | 15 |

Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.

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|---|-----|
| Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill., | 1 |
| Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis., | |
| McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn., | 139 |
| The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo., | |
| Morse Bros. Machinery Co., P.O. Box 1708, Denver 1, Colo., | |
| New Holland Mfg. Co., Mountville, Pa., | 154 |
| Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis., | 22 |
| Pettibone Milliken Corp., 4710 W. Division St., Chicago 51, Ill., | |
| Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn., | |
| Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N.J., | 56 |
| Rogers Iron Works Co., 11th & Pearl, Joplin, Mo., | |
| Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis., | 11 |
| Southwestern Eng. Co., 4900 Santa Fe Ave., Los Angeles 11, Calif., | |
| Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill., | |
| Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif., | 28 |
| Syntron Co., 450 Lexington Ave., Homer City, Penn., | 150 |
| Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn., | 7 |
| The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio, | 287 |
| Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa, | |
| Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y., | 287 |
| Webster Mfg., Inc., Tiffin, Ohio, | |
| Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis., | |

GUARDS, Machinery

| | |
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| Acme Wire & Iron Works, 3527 E. Canfield Ave., Detroit 7, Mich., | |
| Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo., | |
| American Car & Foundry Co., 39 Church St., New York 8, N. Y., | |
| Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif., | |
| Cleveland Wire Cloth & Mfg. Co., 3573 E. 78th St., Cleveland 5, Ohio, | 287 |
| J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans., | 158 |
| Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn., | 156 |
| The Industrial Products Co., 2705 N. Fourth St., Philadelphia 33, Penn., | |
| The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio, | |
| Lewistown Foundry & Machine Co., 16 Elizabeth, Lewistown, Penn., | |
| Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio, | |
| Pacific Car & Foundry Co., Factory St., Renton, Wash., | |
| Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif., | |
| The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio, | 287 |
| Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis., | |

GUNS, Hydraulic Monitor

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| Georgia Iron Works, 605 Twelfth St., Augusta, Ga., | |
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GUTTER BLOCK MACHINES, Concrete

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| Fleming Mfg. Co., Inc., 4985 Flyer Ave., St. Louis 9, Mo., | |
| Stearns Mfg. Co., Inc., Adrian, Mich., | |

GYPSUM PLANT MACHINERY

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|---|-----------|
| Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif., | |
| Coe Mfg. Co., Painesville, Ohio, | |
| Denver Equipment Co., P.O. Box 5268, Denver 17, Colo., | 146 |
| J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans., | 158 |
| Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y., | 148 |
| Gruendler Crusher & Pulverizer Co., 2915-17 Market St., St. Louis, Mo., | 64 |
| The Her-Born Eng. & Mfg. Co., Box 666, Sandusky, Ohio, | |
| Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y., | 15 |
| McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn., | 139 |
| Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis., | 22 |
| Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia, Penn., | 72 |
| H. K. Porter Co., Inc., 49th & Harrison St., Pittsburgh, Penn., | |
| Raymond Pulverizer Div., Combustion Eng. Co., Inc., 1319 N. Branch St., Chicago 22, Ill., | 61 |
| F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., | 71 |
| Standard Steel Corp., 5001 So. Boyle Ave., Los Angeles 11, Calif., | |
| Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill., | |
| Sturtevant Mill Co., 41 Harrison Sq., Boston 22, Mass., | 2nd Cover |
| Syntron Co., 450 Lexington Ave., Homer City, Penn., | 150 |
| Traylor Engr. & Mfg. Co., Allentown, Penn., | 137 |
| Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn., | |

GYPSUM PLANTS, Engineers, Contractors

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| Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif., | |
| J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans., | 158 |
| Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y., | 14 |
| The Nicholson Co., 10 Rockefeller Plaza, New York 20, N. Y., | |
| Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis., | 22 |
| The Stearns-Roger Mfg. Co., 1720 Calif. St., Denver 2, Colo., | |
| Sturtevant Mill Co., 41 Harrison Sq., Boston 22, Mass., | 2nd Cover |
| U. S. Machinery Co., Inc., 90 Broad St., New York 4, N. Y., | |
| Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn., | |

HAMMERMILLS (See Crushers, Hammer, also Mills)

HAMMERS, Electric

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| The Black & Decker Mfg. Co., Towson 4, Maryland, | |
| Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y., | 44 |

DIRECTORY

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
McKiernan-Terry Corp., 15 Park Row, New York 7, N. Y.
Syntron Co., 450 Lexington Ave., Homer City, Penn. 150

HAMMERS, Pulverizer

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49
Alloys Steel & Metals Co., 1862 E. 55th St., Los Angeles 11, Calif.
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill., 45
American Pulverizer Co., 1249 Macklind Ave., St. 10, Mo., 58
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
The Bonnot Co., Mulberry St., Canton 2, Ohio
Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 11, Minn.
Curtis Pneumatic Machinery Co., 1988 Klenlen Ave., St. Louis, Mo.
Diamond Iron Works, Inc., and The Mahr Mfg. Co., 1800 N. 2nd St., Minneapolis, Minn.
Dixie Mchry. Mfg. Co., 4200 Goodfellow, St. Louis 20, Mo., 47
Eagle Crusher Co., Inc., 900 Harding Way East, Gallon, Ohio
Electric Steel Foundry, 2141 N.W., 25th Ave., Portland 10, Ore.
Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio
The Frog Switch & Mfg. Co., Carlisle, Penn., 150
Gilson Bros. Co., Fredonia, Wis., 159
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis Mo., 64
Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia., 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Lime & Hydrate Plants Co., Box 1387, York, Penn.
Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee, Wis.
Manitowoc Eng. Works, Manitowoc, Wis., 42
Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn., 72
Petlibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Prater Pulverizer Co., 1825 S. 55th Ave., Chicago 50, Ill.
Raymond Pulverizer Div., Combustion Engr. Co., Inc., 1319 N. Branch St., Chicago 22, Ill., 61
Taylor-Wharton Iron & Steel Co., High Bridge, N. J., 137
Williams Patent Crusher & Pulv. Co., 2701 N. Broadway, St. Louis 6, Mo., 27
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

HARDENERS, Concrete

American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.
E. I. DuPont de Nemours & Co., Inc., Nemours Bldg., Wilmington 98, Del., 66
Haynes Products Co., 4007 Farnam St., Omaha, Neb.
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio

Pittsburgh Plate Glass Co., Columbia Chemical Div., Fifth Ave. at Bellefield, Pittsburgh 13, Penn.
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
Solvay Sales Corp., 40 Rector St., New York 6, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Tamm's Silica Co., 228 N. La Salle St., Chicago 1, Ill.

HARD SURFACING METALS

Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.
Allied Steel Products, Inc., 1721 N B C Bldg., Cleveland 14, Ohio
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill., 45
Bradley Pulverizer Co., 123 So. Third St., Allentown, Penn., 146
Coast Metals, Inc., 1232 Camden Ave. S.W., Canton 6, Ohio
Dymonhard Corp. of America, 407 Park Square Bldg., Boston 16, Mass.
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Ore.
Harnischfeger Corp., 4400 W. National Ave., Milwaukee, Wis., 145, 158
Haynes Stellite Co., Harrison & Lindsay St., Kokomo, Ind.
R. G. Le Tourneau, Inc., 2301 N. Adams St., Peoria, Ill.
Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Mir-O-Col Alloy Co., 2416 E. 53rd St., Los Angeles, Calif.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
The Resisto-Loy Co., 127 Bayliss St., S.W., Grand Rapids 7, Mich., 38
Stoody Co., 1134 W. Slauson St., Whittier, Calif., 300
Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.
Union Carbide & Carbon Co., 30 E. 42nd St., New York 17, N. Y.
Wall Colmonoy Corp., 714 Fisher Bldg., Detroit 2, Mich.

HATS, Protective

Boyer-Campbell Co., 6540 Antoine St., Detroit 2, Mich.
E. D. Bullard Co., 275 8th St., San Francisco, Calif.
Davis Emergency Equip. Co., Inc., 45 Halleck St., Newark 4, N. J.
Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia 4, Penn.
The B. F. Goodrich Co., Akron, Ohio, 3
The Industrial Products Co., 2705 N. Fourth St., Philadelphia 33, Penn.
Mine Safety Appliances Co., Braddock, Thomas, Meade St., Pittsburgh 8, Penn.
Pulmosan Safety Equipment Corp., 176 Johnson St., Brooklyn 1, N. Y.
Willson Products, Inc., 302 Thorn St., Reading, Penn.

HAULAGE SYSTEMS, Electric

Atlas Car & Mfg. Co., 1140 Ivanhoe Rd., Cleveland 10, Ohio
Differential Steel Car Co., Findlay, Ohio
Easton Car & Constr. Co., Box 270, Easton, Penn.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio, 157

Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.
The Woodford Engr. Co., 77 W. Washington St., Chicago 2, Ill.

HEAT EXCHANGERS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y., 74
Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn., 65
J. P. Devine Mfg. Co., Inc., 909 Shawnee, Mt. Vernon, Ill.
Electric Steel Foundry, 2141 N.W. 25th Ave., Portland, 10, Ore.
Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Manitowoc Engineering Wks., Manitowoc, Wis., 42
D. J. Murray Mfg. Co., Wausau, Wis.
National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Ross Heater & Mfg. Co., Inc., 1407 West Ave., Buffalo 13, N. Y.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y., 71
Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.
Struthers Wells Corp., 1003 Pennsylvania Ave., W., Warren, Penn.
The Trane Co., La Crosse, Wis.
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.
Worthington Pump & Machinery Corp., 744 Broad St., Newark 2, N. J.
Young Radiator Co., 709 S. Marquette St., Racine, Wis.

HEAT TREATING MACHINES, Drill Steel

Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
General Electric Co., 1 River Rd., Schenectady 5, N. Y., 178
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Selas Corp. of America, Erie Ave., and D St., Philadelphia 34, Penn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Worthington Pump & Machinery Corp., 37 Appleton St., Holyoke, Mass.

HEATERS, Concrete Mixers

Aeroll Burner Co., Inc., 13th St. & Park Ave., West New York, N. J.
Littleford Bros., Inc., 460 E. Pearl St., Cincinnati, Ohio
The Macleod Co., 2232-40 Bogen St., Cincinnati 22, Ohio
Marvel Equipment Co., 224 S. Michigan, Chicago, Ill.

HEATERS, ELECTRIC, Bitumen

Easton Car & Constr. Co., Box 270, Easton, Penn.
Laclede-Christy Clay Products Co., Ambassador Bldg., St. Louis, Mo.
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

HEATERS, Plant, Hot Air

American Blower Corp., Box 58, Roosevelt Park Annex, Detroit 32, Mich.
American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.
Buffalo Forge Co., P. O. Box 985, Buffalo 5, N. Y.
Clarage Fan Co., 619 Porter St., Kalamazoo 16, Mich.
Dravo Corp., Neville Island, Pittsburgh 25, Penn.
Macleod Co., 2232-40 Bogen St., Cincinnati, Ohio
D. J. Murray Mfg. Co., Wausau, Wis.
The Trane Co., La Crosse, Wis.
Young Radiator Co., 709 S. Marquette St., Racine, Wis.

HELMETS, WELDING (See Welders Protective Equipment)

HOISTS, Car Dumping

Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala., 136
Curtis Mfg. Co., 1988 Klenlen Ave., St. Louis 20, Mo.
Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
Maddox Fdy. & Machine Wks., Archer, Fla.
McKiernan-Terry Corp., 505 Manor Ave., Harrison, N.J.
O.K. Clutch & Machinery Co., 619 Florence St., Columbia, Penn.
Pressed Steel Car Co., Inc., Industrial Div., 2500 Koppers Bldg., Pittsburgh 30, Penn.
Robins Conveyors, Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J., 56
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
The Wellman Eng. Co., 7000 Central Ave., Cleveland 4, Ohio, 157
Western Gear Works, 417 Ninth, South, Seattle 4, Wash.

HOISTS, Chain

Chisholm-Moore Hoist Corp., Tonawanda, N. Y.
The Cleveland Crane & Eng. Co., Wickliffe, Ohio
Coffing Hoist Co., 800 Walter St., Danville, Ill.
Columbus McKennon Chain Corp., Tonawanda, N. Y.
Conco Eng. Works, Div. of H. D. Conkey Co., 1501 W. Washington Rd., Mendota, Ill.
Ford Chain Block Div., American Chain & Cable Co., 2nd & Diamond Sts., Philadelphia 15 Penn. 3rd Cov.
Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis., 145, 158
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Morse Bros. Mchry. Co., 2900 Broadway, Denver 1, Colo.
Stephens Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Western Gear Works, 417 Ninth, South, Seattle 4, Wash.
Wright Mfg. Div., American Chain & Cable Co., York Penn., 3rd Cover
The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

HOISTS, Dredge

American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn., 153
American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Ind.

DIRECTORY

Bucyrus - Erie Corp., South Milwaukee, Wis., 4th cover
Clyde Iron Wks., Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.
Flory Mfg. Co., Main Street, Bangor, Penn.
Joshua Hendy Iron Wks., Box 37, Sunnysvale, Calif.
McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
Morris Machine Works, Baldwinville, N. Y., 151
Sterling Mchry. Corp., 411 Southwest Blvd., Kansas City 8, Mo.
Western Gear Works, 417 Ninth, South, Seattle 4, Wash.

HOISTS, Dump Body

Anthony Co., Inc., Streator, Ill.
The Burch Corp., Crestline, Ohio
Cook Bros. Equipment Co., 3330 San Fernando Rd., Los Angeles 41, Calif.
Four Wheel Drive Auto Co., Clintonville, Wis.
Gallon Allsteel Body Co., 605 S. Market St., Gallon, Ohio
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis.
Hercules Steel Products Co., Gallon, Ohio
Maddox Foundry & Machine Works, Archer, Fla.
The Marlon Metal Products Co., Cheney St., Marion, Ohio
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo 14, N. Y.
Western Gear Works, 417 Ninth, South, Seattle 4, Wash.

HOISTS, Electric

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49 53
American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn., 153
American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Ind.
Barrett-Cravens Co., 3255 W. 30th St., Chicago 23, Ill.
C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y., 44
Chisholm-Moore Hoist Corp., Tonawanda, N. Y.
The Cleveland Crane & Eng. Co., Wickliffe, Ohio
Clyde Iron Wks., Inc., 29th Ave. W. and Michigan St., Duluth 1, Minn.
Coffing Hoist Co., 800 Walter St., Danville, Ill.
Columbus - McKinnon Chain Corp., Tonawanda, N. Y.
Conco Engr. Wks., Div. of H. D. Conkey Co., 1501 W. Washington Rd., Mendota 1, Ill.
Construction Machinery Co., Glenwood & Vinton St., Waterloo, Iowa
Continental Gin Co., Industrial Div., 4500 - 5th Ave., S., Birmingham, Ala., 136
Detroit Hoist & Machine Co., 8214 Morrow Ave., Detroit 11, Mich.
Dobbie Fdry. & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
Dravo Corp., Neville Island, Pittsburgh 25, Penn.
Electro Lift, Inc., 30 Church St., New York 7, N. Y.
Flory Mfg. Co., Main St., Bangor, Penn.
Godfrey Conveyor Co., Inc., 13th & Wolf, Elkhart, Ind.

Goodman Mfg. Co., 4834 S. Halsted, Chicago 9, Ill.
Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis., 145 158
The Heil Co., 3000 W. Montana, Milwaukee, Wis.
The Her-Born Engr. & Mfg. Co., Box 666, Sandusky, Ohio
Joshua Hendy Iron Wks., Box 37, Sunnysvale, Calif.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York 16, N. Y., 14 15
McGann Mfg. Co., Inc., Box 1187, York, Penn.
McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn., 139
Morse Bros. Mch. Co., P.O. Box 1708, Denver 1, Colo.
Novo Engine Co., 702 Porter St., Lansing, Mich.
O. K. Clutch & Machinery Co., Florence St., Columbia, Penn.
Ottumwa Iron Works, W. Main St., Ottumwa, Iowa
Philadelphia Gear Wks., Inc., Erie Ave. & G St., Philadelphia 34, Penn.
Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
The Sagen Derrick Co., 3101 W. Grand Ave., Chicago 22, Ill.
Sauermaier Bros., Inc., 522 S. Clinton St., Chicago 7, Ill., 152
The Stearns-Roger Mfg. Co., 1718-22 California St., Denver 2, Colo.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sterling Machinery Corp., 411 Southwest Blvd., Kansas City 8, Mo.
Street Brothers Machine Co., 415 Ochs Bldg., Chattanooga 2, Tenn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
Western Gear Works, 417 Ninth, South, Seattle 4, Wash.
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
The Woodford Engr. Co., 77 W. Washington St., Chicago 2, Ill.
Wright Mfg. Div., American Chain & Cable Co., York Penn., 3rd Cover
The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

HOISTS, Gasoline

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49 53
American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn., 153
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y., 44
Chisholm-Moore Hoist Corp., Fremont Ave., Tonawanda, N. Y.
Clyde Iron Wks., 29th Ave. W. and Michigan St., Duluth 1, Minn.
Construction Machinery Co., Glenwood & Vinton St., Waterloo, Iowa
Dobbie Fdry. & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
Flory Mfg. Co., Main St., Bangor, Penn.

Harnischfeger Corp., 4400 W. National Ave., Milwaukee, Wis., 145 158
Joshua Hendy Iron Wks., Box 37, Sunnysvale, Calif.
The Her-Born Engr. & Mfg. Co., Box 666, Sandusky, Ohio
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York 16, N. Y., 14 15
McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
Morse Bros. Mch. Co., P.O. Box 1708, Denver 1, Colo.
Novo Engine Co., 702 Porter St., Lansing, Mich.
O. K. Clutch & Machinery Co., 619 Florence St., Columbia, Penn.
Ottumwa Iron Works, 619 Main St., Ottumwa, Iowa
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
The Sagen Derrick Co., 3101 W. Grand Ave., Chicago 22, Ill.
Sauermaier Bros., Inc., 522 S. Clinton St., Chicago 7, Ill., 152
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Six Wheels, Inc., 1559-1584 E. 20th St., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Sterling Machinery Corp., 411 Southwest Blvd., Kansas City 8, Mo.
Street Brothers Machine Co., 415 Ochs Bldg., Chattanooga 2, Tenn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Western Gear Works, 417 Ninth, South, Seattle 4, Wash.
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

HOISTS, Hydraulic, Pneumatic

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49 53
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y., 44
Chisholm-Moore Hoist Corp., Fremont Ave., Tonawanda, N. Y.
Curtis Pneumatic Machinery Div. of Curtis Mfg. Co., 1905 Klenlen Ave., St. Louis 20, Mo.
Detroit Hoist & Machine Co., 8214 Morrow St., Detroit 11, Mich.
Gallon Allsteel Body Co., 605 S. Market St., Gallon, Ohio
Gardner-Denver Co., Quincy, Ill.
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
Harnischfeger Corp., 4400 W. National Ave., Milwaukee, Wis., 145 158
The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis.
Hercules Steel Products Co., Gallon, Ohio
Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York 16, N. Y., 14 15
McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
Novo Engine Co., 702 Porter St., Lansing, Mich.
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Truck Engr. Corp., 1285 W. 70th St., Cleveland 2, Ohio
Western Gear Works, 417 Ninth, South, Seattle 4, Wash.

HOISTS, Mine

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49 53
American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn., 153
C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Clyde Iron Wks., 29th Ave. W. and Michigan St., Duluth 1, Minn.
Flory Mfg. Co., Main St., Bangor, Penn.
Joshua Hendy Iron Wks., Box 37, Sunnysvale, Calif.
Robert Holmes & Bros. Inc., 515 Junction Ave., Danville, Ill.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Maddox Fdy. & Machine Wks., Archer, Fla.
McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
Morse Bros. Mch. Co., P.O. Box 1708, Denver 1, Colo.
Nordberg Mfg. Co., 3083 So. Chase Ave., Milwaukee 7, Wis., 22
O.K. Clutch & Machinery Co., 619 Florence St., Columbia, Penn.
Ottumwa Iron Wks., W. Main St., Ottumwa, Iowa
Robins Conveyors Inc., (Div. of Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J., 56
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
The Stearns-Roger Mfg. Co., 1718-22 California St., Denver 2, Colo.
Sterling Mch. Corp., 411 Southwest Blvd., Kansas City 8, Mo.
Street Bros. Machine Co., 415 Times Bldg., Chattanooga 2, Tenn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.
The Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio 157
Western Gear Works, 417 Ninth, South, Seattle 4, Wash.
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.
American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn., 153
American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Ind.
Barrett-Cravens Co., 3255 W. 30th St., Chicago, Ill.
C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y., 44
Chisholm-Moore Hoist Corp., Tonawanda, N. Y.
Clipper Mfg. Co., 2800 Warwick, Kansas City 8, Mo.
Clyde Iron Wks., 29th Ave. W. & Michigan St., Duluth 1, Minn.
Coffing Hoist Co., 800 Walter St., Danville, Ill.
Columbus McKinnon Chain Corp., Tonawanda, N. Y.
Conco Engr. Wks., Div. of H. D. Conkey Co., 1501 W. Washington Rd., Mendota 1, Ill.
Detroit Hoist & Machine Co., 8214 Morrow Ave., Detroit 11, Mich.
Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
Electro Lift, Inc., 30 Church St., New York 7, N. Y.
Flory Mfg. Co., Main St., Bangor, Penn.

HOISTS, Portable, Electric

American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn., 153
American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Ind.
Barrett-Cravens Co., 3255 W. 30th St., Chicago, Ill.
C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y., 44
Chisholm-Moore Hoist Corp., Tonawanda, N. Y.
Clipper Mfg. Co., 2800 Warwick, Kansas City 8, Mo.
Clyde Iron Wks., 29th Ave. W. & Michigan St., Duluth 1, Minn.
Coffing Hoist Co., 800 Walter St., Danville, Ill.
Columbus McKinnon Chain Corp., Tonawanda, N. Y.
Conco Engr. Wks., Div. of H. D. Conkey Co., 1501 W. Washington Rd., Mendota 1, Ill.
Detroit Hoist & Machine Co., 8214 Morrow Ave., Detroit 11, Mich.
Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
Electro Lift, Inc., 30 Church St., New York 7, N. Y.
Flory Mfg. Co., Main St., Bangor, Penn.

DIRECTORY

Ford Chain Block Div., American Chain & Cable Co., 2nd & Diamonds Sts., Philadelphia 25, Penn. 3rd Cov.
 Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
 Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 158
 Hyster Co., 2938 N.E. Clackamas St., Portland 8, Ore. 157
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
 Novo Engine Co., 702 Porter St., Lansing, Mich.
 Sasgen Derrick Co., 3101 W. Grand Ave., Chicago 22, Ill.
 Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
 Six Wheels, Inc., 1559-1584 E. 20th St., Los Angeles 11, Calif.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Street Brothers Machine Co., 415 Ochs Bldg., Chattanooga 2, Tenn.
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Western Gear Works, 417 Ninth, South, Seattle 4, Wash.
 Wright Mfg. Div., American Chain & Cable Co., York, Penn. 3rd Cover
 The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

HOISTS, Steam

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn. 153
 American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Ind.
 Chisholm-Moore Hoist Corp., Fremont Ave., Tonawanda, N. Y.
 Clyde Iron Works, 29th Ave. W. & Michigan St., Duluth 1, Minn.
 Flory Mfg. Co., Main St., Bangor, Penn.
 Harnischfeger Corp., 4400 W. National Ave., Milwaukee, Wis. 145, 153
 Kennedy Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York, N. Y. 14, 15
 McGann Mfg. Co., Inc., Box 1187, York, Penn.
 McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
 Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
 Novo Engine Co., 702 Porter St., Lansing, Mich.
 Ottumwa Iron Wks., 402 W. Main St., Ottumwa, Iowa.
 Street Brothers Machine Co., 415 Ochs Bldg., Chattanooga 2, Tenn.
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

HOISTS, Tractor

Allis-Chalmers Tractor Div., 1126 S. 70th St., Milwaukee, Wis. 13
 Cleveland Tractor Co., 19300 Euclid Ave., Cleveland 17, Ohio
 Henneuse Eng. Co., 400 Monroe St., Marion, Ohio
 The Frank G. Hough Co., E. Sunnyside Ave., Libertyville, Ill.
 Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
 Isaacson Iron Works, 2917 E. Marginal Way, Seattle 14, Wash.
 McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Sasgen Derrick Co., 3101 W. Grand Ave., Chicago 22, Ill.

HOOKS, Belt (See Belt Fasteners)

HOOKS, Wire Rope (See Wire Rope Fittings)

HOPPERS, Aggregates, Cement, etc.

Allied Welding & Manufacturing Co., 49 Lorna Doone Blvd., Orlando, Fla.
 Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
 Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16
 Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn. 65
 Frank I. Blatt Sales Co., Inc., Rattlesnake, Fla.
 Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Butler Bin Co., Waukesha, Wis.
 Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo. 191
 Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Dravo Corp., Neville Island, Pittsburgh 25, Penn.
 Edgar's Block Machine Works, 240 W. Granada Ave., Ormond, Fla.
 Erie Steel Construction Co., Geist Road and NKP Railroad, Erie, Penn. 192
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
 Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla. 189
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
 George Halss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
 The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 Hendrick Mfg. Co., 52 Dundaff St., Carbondale, Penn. 156
 Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
 Iowa Mfg. Co., N. E., Cedar Rapids, Iowa 67
 Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Kennedy Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York 16, N. Y. 14, 15
 The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
 Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
 Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
 Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
 Multiplex Concrete Mchry. Co., Elmore, Ohio 163
 Noble Co., 1860 7th St., Oakland 7, Calif.
 Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Standard Steel Corp., 5001 Boyle St., Los Angeles 11, Calif.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Traylor Eng. & Mfg. Co., Allentown, Penn. 7
 Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

HOPPERS, Unloading Ready Mixed Concrete

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65
 Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Butler Bin Co., Waukesha, Wis.
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Erie Steel Construction Co., Box 1031, Erie, Penn. 192
 Fleming Mfg. Co., Inc., 4985 Flyer Ave., St. Louis 9, Mo. 190
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2146 E. 16th St., Los Angeles 21, Calif.
 Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
 Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
 C. S. Johnson Co., Box 71, Champaign, Ill.
 Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
 Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
 Noble Co., 1860 7th St., Oakland 7, Calif.
 Ransome Mchry. Co., Dunellen, N. J.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

HOSE, Air Drill

The American Rubber Mfg. Co., 1145 Park Ave., Oakland 8, Calif.
 Boston Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.
 Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y.
 Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y. 44
 The Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio
 Continental Rubber Works, 1902 Liberty St., Erie, Penn.
 The DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio
 Gardner-Denver Co., Gardner & First Ave., Quincy, Ill.
 The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
 Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Penn. 272
 The B. F. Goodrich Co., Akron, Ohio 3
 The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
 Hewitt Rubber, Buffalo Div. of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
 Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Kado Corp., 36-40 11th St., Long Island City, N. Y. (Subsidiary of Complete Machinery & Equipment Co.)
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
 Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn. 12
 The Raybestos Div. of Raybestos-Manhattan, Inc., P. O. Box 1021, Bridgeport 2, Conn. 59
 Republic Rubber Div., Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Thermoid Co., Whitehead Rd., Trenton 6, N. J.
 U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y. 130
 Worthington Pump & Mch. Co., 37 Appleton St., Holyoke, Mass.

HOSE, Water, Steam, Sand, Suction and Discharge

The American Rubber Mfg. Co., 1145 Park Ave., Oakland 8, Calif.
 Boston Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.
 Carlyle Rubber Co., Inc., 62 Park Place, New York 7, N. Y.
 The Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio
 Construction Mchry. Co., Glenwood & Vinton Sts., Waterloo, Iowa
 Continental Rubber Works, 1902 Liberty St., Erie, Penn.
 The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
 Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Penn.
 The B. F. Goodrich Co., Akron, Ohio 3
 The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio 9
 Hewitt Rubber, Buffalo Div. of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
 Kado Corp., 36-40 11th St., Long Island City, N. Y. (Subsidiary of Complete Machinery & Equipment Co.)
 The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Morris Machine Works, 31 E. Genesee St., Baldwinsville, N. Y. 151
 Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.
 Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn. 30
 The Raybestos Div. of Raybestos-Manhattan, Inc., P. O. Box 1021, Bridgeport 2, Conn. 59
 Republic Rubber Div., Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio
 Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
 Thermoid Co., Whitehead Rd., Trenton 6, N. J.
 U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y. 130
 Worthington Pump & Mch. Co., 37 Appleton St., Holyoke, Mass.

HOSE FITTINGS

Balcrank Inc., Disney St., Cincinnati 9, Ohio
 Band-It Co., 2536 Walnut St., Denver, Colo.
 Boston Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.
 Chicago Pneumatic Drill Co., 6 East 44th St., New York 17, N. Y. 44
 Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio

DIRECTORY

Cleveland Rock Drill Co.,
3781 E. 77th St., Cleve-
land 5, Ohio
Continental Rubber Works,
1902 Liberty St., Erie,
Penn.

Curtis Mfg. Co., 1988 Klen-
len Ave., St. Louis 20, Mo.
The DeVilbiss Co., 300 Phil-
lips Ave., Toledo 1, Ohio
Dixon Valve & Coupling Co.,
Hancock St. & Columbia
Ave., Philadelphia 22, Penn.
Gardner-Denver Co., Gardner
& First Ave., Quincy, Ill.
The Gates Rubber Co., 999
S. Broadway, Denver 17,
Colo.

Goodall Rubber Co., 5 S. 36th
St., Philadelphia 4, Penn.
The B. F. Goodrich Co.,
Akron, Ohio

The Goodyear Tire & Rubber
Co., Inc., 1144 E. Market,
Akron, Ohio

Hewitt Rubber Buffalo, Div.
of Hewitt-Robins, Inc., 240
Kensington Ave., Buffalo 5,
N. Y.

Hose Accessories Co., Le-
high Ave. & 17th Street,
Philadelphia 32, Penn.

Independent Pneumatic Tool
Co., 600 W. Jackson Blvd.,
Chicago 6, Ill.

Ingersoll-Rand Co., 11 Broad-
way, New York 4, N. Y.
Knox Mfg. Co., 811 Cherry
St., Philadelphia 7, Penn.

The Manhattan Rubber Mfg.
Div. of Raybestos-Manhat-
tan, Inc., 61 Willett St.,
Passaic, N. J.

Meckum Engr. Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.

New Haven Vibrator Co., 131
Chestnut St., New Haven 7,
Conn.

Republic Rubber Div., Lee
Rubber & Tire Corp.,
Albert St., Youngstown 1,
Ohio

Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.

Thermoid Co., Whitehead
Rd., Trenton 6, N. J.
U. S. Rubber Co., 1230 6th
Ave., New York 20, N. Y.

Worthington Pump & Mch.
Co., 37 Appleton St., Hol-
yoake, Mass.

HULLS, Dredge
(See Dredges)

HUMIDIFIERS, Laboratory
(See Laboratory Appa-
ratus)

HYDRATORS, Lime

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis.49, 53
Arnold & Welgel, Inc.,
Woodville, Ohio

Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh 22,
Penn.

Builders - Providence, Inc.,
9 Coddling St., Providence
1, R. I.

The Dorr Co., 570 Lexington
Ave., New York 22, N.Y....
Hardinge Co., Inc., 240 Arch
St., York, Penn.147

Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y.14,
Kritzer Co., 333 N. Michigan
Ave., Chicago 1, Ill.

Lime & Hydrate Plants Co.,
232 E. Poplar St., York,
Penn.

Nordberg Mfg. Co., 3083 S.
Chase Ave., Milwaukee 7,
Wis.

Omega Machine Co., 9 Cod-
ding St., Providence 1,
R. I.

Traylor Eng. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn.

Vulcan Iron Wks., 700 S.
Main St., Wilkes-Barre,
Penn.

IDLERS, Conveyor
(See Conveyor Idlers)

INDICATORS, Bin (See Bin
Level Indicators)

INDUSTRIAL X-RAY EQUIP-
MENT

General Electric Co., 1 River
Road, Schenectady 5, N. Y.
North American Phillips Co.,
Inc., 100 E. 42nd St., New
York 17, N. Y.
R.C.A. Victor Division of
The Radio Corporation of
America, Camden, N. J.

INSULATING CEMENT
(See Cement, Insulating)

INSULATION, Heat

Baldwin-Hill Corp., 500
Brenwig Ave., Trenton 2,
N. J.

The Denver Fire Clay Co.,
P.O. Box 5510, Denver 17,
Colo.

The Dodson Mfg. Co., Inc.,
1463 Barwise Ave., Wich-
ita 2, Kans.160

A. P. Green Fire Brick Co.,
1018 E. Breckenridge, Mex-
ico, Mo.

Harbison - Walker Refrac-
tories Co., 1800 Farmers
Bank Bldg., Pittsburgh 22,
Penn.

Johns-Manville, 22 E. 40th
St., New York 16, N. Y.
Mexico Refractories Co.,
Love & Cole Sts., Mexico,
Mo.

Quigley Co., 527 Fifth Ave.,
New York 17, N. Y.

Raybestos-Manhattan, Inc.,
61 Willett St., Passaic,
N. J.

Refractory & Insulation
Corp., 120 Wall St., New
York 5, N. Y.

The Ruberoid Co., 500 Fifth
Ave., New York, N. Y.

Universal Zonolite Insulation
Co., 135 S. LaSalle St., Chi-
cago 3, Ill.

JACKS, HYDRAULIC

Blackhawk Mfg. Co., Mil-
waukee 1, Wis.

The Buda Co., 15428 Com-
mercial Ave., Harvey, Ill.
Chicago Pneumatic Tool Co.,
6 E. 44th St., New York
17, N. Y.44

The Duff-Norton Mfg. Co.,
P.O. Box 1889, Pittsburgh
30, Penn.

Henneuse Eng. Co., 400
Monroe St., Marion, Ohio

Templeton, Kenly & Co.,
1020 So. Central Ave., Chi-
cago 44, Ill.

JIGS, Sand and Gravel

Allen Cone & Mch. Corp.,
120 Broadway, New York
5, N. Y.

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis.49, 53
F. N. Bendelari, Joplin Na-
tional Bank Bldg., Joplin,
Mo.

Dehver Equipment Co., P.O.
Box 568, Denver 17, Colo.

Link-Belt Co., 300 W. Persh-
ing Rd., Chicago 9, Ill.

Lippmann Eng. Wks., 4603
W. Mitchell St., Milwau-
kee 14, Wis.

The Mine & Smelter Supply
Co., 1422 17th St., Denver,
Colo.

Morse Bros. Machinery Co.,
P.O. Box 1708, Denver 1,
Colo.

Overstrom & Sons, 2213 W.
Mission Rd., Alhambra,
Calif.

Rodgers Hydraulic Inc., 7401
Walker St., Minneapolis
16, Minn.

Rogers Iron Works Co., 11th
& Pearl, Joplin, Mo.

Templeton, Kinly & Co., 1020
S. Central Ave., Chicago
44, Ill.

Traylor Eng. & Mfg. Co., Al-
lertown, Penn.7

JOIST AND SLAB
MACHINES, Concrete

Besser Mfg. Co., Alpena,
Mich.170, 183
W. E. Dunn Mfg. Co., 23 W.
24th St., Holland, Mich.

Jackson & Church Co., 321
N. Hamilton St., Saginaw,
Mich.

The Kirk & Blum Mfg. Co.,
2807 Spring Grove Ave.,
Cincinnati 25, Ohio

Multiplex Concrete Machin-
ery Co., Elmore, Ohio.... 163

KETTLES, Gypsum,
Calcining

J. B. Ehrsam & Sons Mfg.
Co., Enterprise, Kans.... 158
Hendrick Mfg. Co., 39 Dun-
daff St., Carbondale, Penn.

H. K. Porter Co., Inc., Oliv-
er Bldg., Pittsburgh, Penn.

KILN CHAIN SYSTEMS
(See Heat Exchangers)

KILN PARTS, ENDS, ETC.

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis.49, 53
American Brake Shoe Co.,
Electro-Alloys Div., Tay-
lor St. & Abbey Rd.,
Elyria, Ohio

American Car & Foundry
Co., 30 Church St., New
York 8, N. Y.

American Manganese Steel
Div., 377 E. 14th St., Chi-
cago Heights, Ill.45

Bethlehem Foundry & Ma-
chine Co., 225 W. 2nd St.,
Bethlehem, Penn.

Chicago Steel Foundry Co.,
3720 S. Kedzie Ave., Chi-
cago 32, Ill.

Huron Industries, Alpena,
Mich.

Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y.14,
Lime & Hydrate Plants Co.,
P.O. Box 1387, York, Penn.

Victor J. Nelson Eng. &
Constr. Co., 1321 River-
side Dr., Burbank, Calif.

Manitowoc Eng. Works, Man-
itowoc, Wis.42

F. L. Smidth & Co., 11 W.
42nd St., New York 18,
N. Y.68, 71

Traylor Engr. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn.7

Vulcan Iron Wks., 700 S.
Main St., Wilkes-Barre,
Penn.

KILNS (Curing, Concrete)

Hardinge Co., Inc., 240 Arch
St., York, Penn.147

Jackson & Church Co., 321
N. Hamilton St., Saginaw,
Mich.

Lime & Hydrate Plants Co.,
P.O. Box 1387, York, Penn.

Victor J. Nelson Eng. &
Constr. Co., 1321 River-
side Dr., Burbank, Calif.

F. L. Smidth & Co., 11 W.
42nd St., New York 18,
N. Y.68, 71

KILNS, Lime, Vertical

Alpha Tank & Sheet Metal
Mfg. Co., 5001 S. 38th St.,
St. Louis 16, Mo.

Arnold & Welgel, Inc.,
Woodville, Ohio

Chicago Bridge & Iron Co.,
332 S. Michigan Ave., Chi-
cago 4, Ill.

Ellernan Co., 203 Continental
Bank Bldg., Salt Lake City,
Utah

Hardinge Co., Inc., 240 Arch
St., York, Penn.147

Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y.14,
Lime & Hydrate Plants Co.,
232 E. Poplar St., York,
Penn.

McGann Mfg. Co., P.O. Box
1187, York, Penn.

Manitowoc Eng. Works, Man-
itowoc, Wis.42
Victor J. Nelson Eng. &
Constr. Co., 1321 River-
side Dr., Burbank, Calif.
Ruggles-Coles Eng. Co., 122
E. 42nd St., New York,
N. Y.
Vulcan Iron Wks., 700 S.
Main St., Wilkes-Barre,
Penn.

KILNS, Rotary, Cement,
Gypsum, Lime

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis.49, 53
C. O. Bartlett & Snow Co.,
6194 Harvard Ave., Cleve-
land, Ohio

Bethlehem Steel Co., Inc.,
Bethlehem, Penn.65
Bonnot Co., Mulberry Rd.
S. E., Canton, Ohio

Chicago Bridge & Iron Co.,
332 S. Michigan Ave., Chi-
cago 4, Ill.

L. R. Christie Co., 17 E.
42nd St., New York 17,
N. Y.

Colorado Iron Wks. Co., 1624
17th St., Denver 2, Colo.

Hardinge Co., Inc., 240 Arch
St., York, Penn.147

Kennedy-Van Saun Mfg. &
Eng. Corp., 2 Park Ave.,
New York 16, N. Y.14,
Lime & Hydrate Plants Co.,
232 E. Poplar St., York,
Penn.

Manitowoc Eng. Works, Man-
itowoc, Wis.42

McGann Mfg. Co., Inc., Box
1187, York, Penn.

Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.

Victor J. Nelson Eng. &
Constr. Co., 1321 River-
side Dr., Burbank, Calif.

Nordberg Mfg. Co., 3083 S.
Chase Ave., Milwaukee 7,
Wis.

W. A. Riddell Corp., 201 E.
Warren, Bucyrus, Ohio

Ruggles-Coles Eng. Co., 122
E. 42nd St., New York,
N. Y.

F. L. Smidth & Co., 11 W.
42nd St., New York 18,
N. Y.68, 71

Standard Steel Corp., 5001
S. Boyle Ave., Los An-
geles 11, Calif.

Struthers Wells Corp., 1003
Pennsylvania Ave., W.
Warren, Penn.

Traylor Engr. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn.7

Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.

LABORATORY APPARATUS

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis.49, 53

American Blower Corp., Box
58, Roosevelt Park Annex,
Detroit 32, Mich.

American Instrument Co.,
Inc., 8015 Georgia Ave., Sil-
ver Springs, Md.

Barber-Greene Co., 631 W.
Park Ave., Aurora, Ill.16

Burrell Technical Supply Co.,
1936-42 Fifth Ave., Pitts-
burgh 19, Penn.

Black & Decker Mfg. Co.,
600 E. Penn. Ave., Towson,
Md.

Cambridge Instrument Co.,
Inc., 3732 Grand Central
Terminal, New York 17,
N. Y.

Central Scientific Co., 1702
Irving Park Blvd., Chicago,
Ill.

Denver Equipment Co., P.O.
Box 5268, Denver 17, Colo.

The Dorr Co., 570 Lexington
Ave., New York 22, N. Y.54
The Elmco Corp., P.O. Box
300, Salt Lake City 8, Utah

Farrel-Bacon Co., Singer
Bldg., 149 Broadway, New
York, N. Y.148

Fisher Scientific Co., 717
Forbes St., Pittsburgh 19,
Penn.

The Gallagher Co., 48 S. 2nd
East St., Salt Lake City 1,
Utah140

DIRECTORY

General Electric Co., 1 River Rd., Schenectady 5, N. Y. 178
Kron Co., 1720 Fairfield Ave., Bridgeport 5, Conn.
Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
The Mines & Smelter Supply Co., P.O. Box 5270, Terminal Station, Denver 17, Colo.
Morse Bros. Mch. Co., P.O. Box 1708, Denver 1, Colo.
Palo Myers, Inc., 81 Reade St., New York 17, N. Y.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh, Penn.
Rodgers Hydraulic Inc., 7401 Walker St., Minneapolis 16, Minn.
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass.
The Trane Co., 2nd & Cameron Ave., La Crosse, Wis.
The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio
Universal Vibrating Screen Co., Deane Blvd. & St. Paul R.R., Racine, Wis., 159
Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.

LABORATORIES, Testing

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 153
Denver Equipment Co., P.O. Box 5768, Denver 1, Colo., 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y., 54
The Gallagher Co., 48 S. 2nd East St., Salt Lake City 1, Utah, 140
Robert Hunt Co., 175 W. Jackson Blvd., Chicago, Ill.
H. C. Nutting Co., Cincinnati, Ohio
Pittsburgh Testing Laboratory, Stevenson St., Pittsburgh, Penn.
Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
Universal Vibrating Screen Co., Deane Blvd. & St. Paul R.R., Racine, Wis., 159

LACING, Belt (See Belt Lacing)

LADDERS, Dredge

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill., 45
American Steel Dredge Co., Inc., 2511 Taylor St., Ft. Wayne 6, Ind.
Bucyrus-Erie Co., South Milwaukee, Wis., 4th cover
Eagle Iron Works, 129 Holcomb Ave., Des Moines 4, Iowa, 301
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Maddox Foundry & Machine Works, Archer, Fla.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morris Machine Works, 51 E. Genesee St., Baldwinville, N. Y., 151
Pacific Car & Foundry Co., Factory St., Renton, Wash.

LARRIES, WEIGH (See Weigh Larries)

LAUNDERS (See Chutes)

LIFT TRUCKS, Concrete Products, etc.

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
The Baker-Raulang Co., 2168 W. 25th St., Cleveland 25, Ohio
Barrett-Cravens Co., 3255 W. 30th St., Chicago, Ill.
Besser Mfg. Co., Alpena, Mich., 170, 183

Frank I. Blatt Sales Co., Inc., Rattlesnake, Fla.
Clark Tractor Div. Clark Equipment Co., Battle Creek, Mich.
Concrete Transport Mixer Co., 650 Rosedale, St. Louis 12, Mo., 191
Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga., 169, 191
Easton Car & Constr. Co., Box 270, Easton, Penn.
The Elwell Parker Elec. Co., 4205 St. Clair Ave., Cleveland 14, Ohio
Erickson Special Equipment Mfg. Co., 109 14th Ave., N.E., Minneapolis 13, Minn., 196
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo., 190
Gar Wood Industries, Inc., 7924 Reopelle St., Detroit 11, Mich.
Henneuse Eng. Co., 400 Monroe St., Marion, Ohio
Hughes-Keenan Co., 621 Newman St., Mansfield, Ohio
Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
Lewis-Shepard Sales Corp., Watertown, Mass.
Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio
Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Ross Carrier Co., 250 Miller St., Benton Harbor, Mich.
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Stearns Mfg. Co., Inc., Adrian, Mich.
Towmotor Corp., 1226 E. 152nd Street, Cleveland 10, Ohio
The Yale & Towne Mfg. Co., Phila. Div., 4530 Tacony St., Philadelphia 24, Penn.

LIGHTERS, Fuse (See Blasting Supplies)

LIME HANDLING EQUIPMENT

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Arnold & Wegel, Inc., Woodville, Ohio
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Continental Gin Co., Industrial Div., 4500 5th Ave., So., Birmingham, Ala., 136
Eagle Crusher Co., Inc., 900 Harding Way East, Gallon, Ohio
Fuller Co., Fuller Bldg., Catasauqua, Penn., 24, 25
The Frank G. Hough Co., E. Sunnyside Ave., Libertyville, Ill.
Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
The Jeffrey Mfg. Co., 935-99 4th St., Columbus 16, Ohio, 63
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y., 14, 15
Lime & Hydrate Plants Co., P.O. Box 1387, York, Penn.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill., 1
Omega Machine Co., 9 Codding St., Providence 1, R. I.
Robins Conveyors Inc., (Div. of Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y., 68, 71
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass., 2nd cover
Traylor Eng. & Mfg. Corp., Tenth & Mill Sts., Allentown, Penn., 7
Webster Mfg., Inc., Tiffin, Ohio

Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo., 27

LIME KILNS (See Kilns)

LIME AND LIMESTONE SPREADERS

Anthony Co., Inc., Streator, Ill.
Baughman Mfg. Co., 116 E. Arch, Jerseyville, Ill., 287
Even Spread Spreader Co., Owensville, Ohio
Flink Company, 502 N. Vermillion St., Streator, Ill., 159
General Implements Corp., 629 Euclid Ave., Cleveland 14, Ohio
Highway Equipment Co., 616 D Ave., N.W., Cedar Rapids, Iowa, 156
The Marlon Metal Products Co., Cheney St., Marlon, Ohio
New Idea, Inc., Coldwater, Ohio
Portable Elevator Mfg. Co., 920 E. Grove St., Bloomington, Ill.

LIME MORTAR & PUTTY PLANTS

Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago 4, Ill.
Lime & Hydrate Plants Co., P.O. Box 1387, York, Penn.

LIME PLANTS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 53
Arnold & Wegel, Inc., Woodville, Ohio
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Ellernan Co., 203 Continental Bank Bldg., Salt Lake City, Utah
Hardinge Co., Inc., 240 Arch St., York, Penn., 147
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y., 14, 15
Kritzer Co., 333 N. Michigan Ave., Chicago 1, Ill.
Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.
Lippman Engr. Wrks., 4603 W. Mitchell St., Milwaukee 14, Wis.
McGann Mfg. Co., P. O. Box 1187, York, Penn.
Raymond Pulverizer Division, Combustion Engr. Co., Inc., 1319 N. Branch St., Chicago 22, Ill., 61
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., 68, 71
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass., 2nd cover
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn., 7
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo., 27

LINERS, Kiln (See Fire Brick, Brick)

LINERS, METAL, Grinding Mills

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 49, 53
American Car & Foundry Co., 30 Church St., New York 8, N. Y.
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill., 45
Audubon Wire Cloth Corp., (Subsidiary of Manganese Steel Forge Co.) Richmond St. & Castor Ave., Philadelphia, Penn.
The Babcock & Wilcox Co., 85 Liberty St., New York, 6, N. Y., 74

Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
Denver Equipment Co., P.O.B. 5268, Denver 17, Colo., 146
The Elmco Corp., P. O. Box 300 Salt Lake City, Utah
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland, 10, Ore.
The Frog, Switch & Mfg. Co., Carlisle, Penn., 150
Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn., 147
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y., 14, 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Magnolia Metal Co., 18 West Jersey St., Elizabeth 4, N.J.
The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo.
The Pennebacker Co., 4th and Furnace Sts., Emmons, Penn.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh, Penn.
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y., 68, 71
Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif., 28
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn., 7
Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.

LINERS, Pump (Metal)

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill., 45
The Babcock & Wilcox Co., 85 Liberty St., New York, N. Y., 74
Denver Equipment Co., P.O.B. 5268, Denver 17, Colo., 146
Electric Steel Fdy., 2141 N.W. 25th Ave., Portland 10, Ore.
The Gallagher Co., 48 So. 2nd East St., Salt Lake City 1, Utah, 140
Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N.J.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morris Machine Wks., Baldwinville, N. Y., 151
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J., 137
The Tool Steel Gear & Pinion Co., 211 Township Ave., Cincinnati 16, Ohio

LININGS, CHUTE (See Chute Linings)

LOADERS, Boat

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
A. B. Farquhar Co., Ltd. (Portable Machinery Div.), N. Duke St., York, Penn.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio, 63
Link-Belt Co., 2045 W. Hunting Ave., Philadelphia 40, Penn., 1
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J., 56

DIRECTORY

Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Wellman Eng. Co., 7000 Cen-
tral Ave., Cleveland 4,
Ohio 157
The Yale & Towne Mfg. Co.,
Phila. Div., 5430 Tacony
St., Philadelphia 24, Penn.

LOADERS, Car

Athey Truss Wheel Co., 5631
W. 65th St., Chicago 38,
Ill.
Atlas Conveyor Co., 15th St.,
Clintonville, Wis.
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Bonded Scale Co., 2176 So.
Third St., Columbus 7,
Ohio 189
The Burch Corp., Crestline,
Ohio
Champion Line Machinery
Co., 95 Schuyler Ave., No.
Arlington, N. J.
Diamond Iron Wks., Inc.,
and The Mahr Mfg. Co.
Div., 1800 N. 2nd St., Min-
neapolis 11, Minn.
Dresser Mfg., Div. of Dresser
Industries, Inc., Bradford,
Penn.
The Elmco Corp., P. O. Box
300, Salt Lake City 8, Utah
A. B. Farquhar Co., Ltd.
(Portable Machinery Div.),
N. Duke St., York, Penn.
Gardner-Denver Co., Quincy,
Ill.
Gar Wood Industries, Inc.,
7924 Riopelle St., Detroit
11, Mich.
Hyster Co., 2902 N.E., Clack-
amas St., Portland 8, Ore.
Jaeger Machine Co., 550 W.
Spring St., Columbus 16,
Ohio 37
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Lewistown Foundry & Ma-
chine Co., 16 Elizabeth St.,
Lewistown, Penn.
Link-Belt Co., 2045 W. Hunt-
ing Park Ave., Philadel-
phia 40, Penn. 1
Lippmann Eng. Works, 4603
W. Mitchell St., Milwau-
kee 14, Wis.
Manierre Engr. & Machinery
Co., 759 N. Milwaukee St.,
Milwaukee, Wis.
Ottumwa Box Car Loader
Inc., P. O. Box 417, Ot-
tumwa, Iowa
Robins Conveyors Inc., (Div.
Hewitt-Robins, Inc.), 270
Passaic Ave., Passaic, N. J.
Screw Conveyor Corp., 700
Hoffman St., Hammond,
Ind.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Webster Mfg., Inc., Tiffin,
Ohio
The Yale & Towne Mfg. Co.,
Phila. Div., 5430 Tacony
St., Philadelphia 24, Penn.

LOADERS, Tractor

Allis-Chalmers Tractor Div.,
1126 S. 70th St., Milwau-
kee, Wis. 13
Athey Products Corp., 5631
W. 65th St., Chicago 38,
Ill.
The Elmco Corp., P. O. Box
300, Salt Lake City 8, Utah
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th cover
Champion Line Machinery
Co., 95 Schuyler Ave., No.
Arlington, N. J.
The Frank G. Hough Co., E.
Sunnyside Ave., Liberty-
ville, Ill.
Hyster Co., 2902 N. E. Clack-
amas St., Portland 8, Ore.
Leamann Mfg. Co., P.O.
Box 873, Des Moines 4,
Iowa
Lima Locomotive Works,
Inc., Shovel & Crane Div.,
1108 National Bank Bldg.,
Lima, Ohio
M. P. McCaffrey, Inc., 2121
E. 25th St., Los Angeles
11, Calif.

Marion Machine Co., Marion,
N. C.
Minneapolis-Moline Power
Implement Co., Box 1050,
Minneapolis 1, Minn.
Ottawa Steel Prod. Inc.,
Ottawa, Kan.
Southwest Welding & Mfg.
Co., 3201 W. Mission Rd.,
Alhambra, Calif.
Trackson Co., Milwaukee 1,
Wis. 40
The Yale & Towne Mfg. Co.,
Phila. Div., 5430 Tacony
St., Philadelphia, Penn.

LOADERS, Truck (See also Bucket Loaders)

Athey Truss Wheel Co., 5631
W. 65th St., Chicago 38,
Ill.
Barber-Greene Co., 631 W.
Park Ave., Aurora, Ill. 16
Bonded Scale Co., 2176 S.
3rd St., Columbus 7, Ohio. 189
Champion Line Machinery
Co., 95 Schuyler Ave., No.
Arlington, N. J.
Cleveland Tractor Co., 19300
Euclid Ave., Cleveland 17,
Ohio
Eagle Crusher Co., Inc.,
900 Harding Way East,
Galion, Ohio
The Elmco Corp., P. O. Box
300, Salt Lake City 8, Utah
A. B. Farquhar Co., Ltd.
(Portable Machinery Div.),
N. Duke St., York, Penn.
Gar Wood Industries, Inc.,
7924 Riopelle St., Detroit
11, Mich.
George Halsz Mfg. Co., Inc.,
Park Ave. & 143rd St.,
New York 51, N. Y.
Hyster Co., 2902 N. E. Clack-
amas St., Portland 8, Ore.
Jaeger Machine Co., 550 W.
Spring St., Columbus 16,
Ohio 37
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Link-Belt Co., 2045 W. Hunt-
ing Park Ave., Philadel-
phia 40, Penn. 1
Lippmann Eng. Works, 4603
W. Mitchell St., Milwau-
kee 14, Wis.
Marion Machine Co., Marion,
N. C.
N. P. Nelson Iron Works,
Inc., 820 Bloomfield Ave.,
Clifton, N. J.
New Holland Machine Co.,
100 Franklin St., New Hol-
land, Penn. 154
Sauerman Bros., Inc., 530 S.
Clinton St., Chicago 7, Ill. 152
Truk-Loder Co., 45 Grace
St., Tiffin, Ohio
The Yale & Towne Mfg. Co.,
Phila. Div., 5430 Tacony
St., Philadelphia 24, Penn.

LOADERS, Underground

The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
The Elmco Corp., P. O. Box
300, Salt Lake City 8, Utah
Gardner-Denver Co., Gardner
& First Ave., Quincy, Ill.
Goodman Mfg. Co., 4834 S.
Halsted St., Chicago 9, Ill.
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Morse Bros. Mchry. Co., 2900
Broadway, Denver 1, Colo.
Rogers Iron Wks. Co., 11th
& Pearl, Joplin, Mo.
Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.
Trackson Co., Milwaukee 1,
Wis. 40

LOCOMOTIVES, Diesel

American Locomotive Co., 30
Church St., New York,
N. Y.
Brookville Locomotive Wks.,
Brookville, Penn.
The Cooper-Bessemer Corp.,
Mt. Vernon, Ohio
Davenport Besler Corp., 2305
Rockingham Rd., Daven-
port, Iowa 158

Differential Steel Car Co.,
Findlay, Ohio.
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
The Fate-Root-Heath Co.,
Plymouth, Ohio 142
Four Wheel Drive Auto Co.,
Clintonville, Wis.
Plymouth Locomotive
Works, 607 Riggs Ave.,
Plymouth, Ohio 142
H. K. Porter Co., Inc., Oliver
Bldg., Pittsburgh 22, Penn.
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
The Whitcomb Locomotive
Co., 940 Park St., Rochelle,
Ill.

LOCOMOTIVES, Diesel- Electric

American Locomotive Co., 30
Church Street, New York,
N. Y.
The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
Baldwin Locomotive Wks.,
940 Simpson St., Eddy-
stone, Penn.
Brookville Locomotive Wks.,
P. O. Box 26, Brookville,
Penn.
The Cooper-Bessemer Corp.,
Sandusky St., Mt. Vernon,
Ohio
Davenport Besler Corp., 2305
Rockingham Road, Daven-
port, Iowa 158
Differential Steel Car Co.,
Findlay, Ohio.
Enterprise Engine & Fdy.
Co., 18th & Florida Sts.,
San Francisco 10, Calif.
The Fate-Root-Heath Co.,
Plymouth, Ohio 142
General Electric Co., 1 River
Rd., Schenectady 5, N. Y.
Helsier Locomotive Wks.,
Erie, Penn.
H. K. Porter Co., Inc., Olly-
ver Bldg., Pittsburgh 22,
Penn.
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
Westinghouse Elec. & Mfg.
Co., Hill St., E. Pitts-
burgh, Penn.
The Whitcomb Locomotive
Co., 940 Park St., Rochelle,
Ill.

LOCOMOTIVES, Electric

American Locomotive Co., 30
Church Street, New York,
N. Y.
The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
Baldwin Locomotive Wks.,
940 Simpson St., Eddy-
stone, Penn.
Davenport Besler Corp., 2305
Rockingham Road, Daven-
port, Iowa 158
Differential Steel Car Co.,
Findlay, Ohio
The Fate-Root-Heath Co.,
Plymouth, Ohio 142
General Electric Co., 1 River
Rd., Schenectady 5, N. Y.
Goodman Mfg. Co., 4834 S.
Halsted, Chicago 9, Ill.
Helsier Locomotive Wks.,
Erie, Penn.
The Jeffrey Mfg. Co., 935-99
W. 4th St., Columbus 16,
Ohio 63
Morse Bros. Mchry. Co., 2900
Broadway, Denver 1, Colo.
H. K. Porter Co., Inc., Olly-
ver Bldg., Pittsburgh 22,
Penn.
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
Westinghouse Elec. & Mfg.
Co., E. Pittsburgh, Penn.
The Whitcomb Locomotive
Co., 940 Park St., Rochelle,
Ill.

LOCOMOTIVES, Gasoline

Baldwin Locomotive Wks.,
940 Simpson Street, Eddy-
stone, Penn.

Brookville Locomotive Wks.,
Brookville, Penn.
Davenport Besler Corp., 2305
Rockingham Road, Daven-
port, Iowa 158
Differential Steel Car Co.,
Findlay, Ohio
The Fate-Root-Heath Co.,
Plymouth, Ohio 142
Four Wheel Drive Auto Co.,
Clintonville, Wis.
Helsier Locomotive Works,
Erie, Penn.
Plymouth Locomotive Wks.,
607 Riggs Ave., Plymouth,
Ohio 142
H. K. Porter Co., Inc., Olly-
ver Bldg., Pittsburgh 22,
Penn.
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
The Whitcomb Locomotive
Co., 940 Park St., Rochelle,
Ill.

LOCOMOTIVES, Gasoline- Electric

The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
Baldwin Locomotive Wks.,
940 Simpson Street, Eddy-
stone, Penn.
Davenport Besler Corp., 2305
Rockingham Road, Daven-
port, Iowa 158
Differential Steel Car Co.,
Findlay, Ohio
The Fate-Root-Heath Co.,
Plymouth, Ohio 142
General Electric Co., 1 River
Road, Schenectady 5, N. Y.
Helsier Locomotive Works,
Erie, Penn.
Morse Bros. Mchry. Co., 2900
Broadway, Denver 1, Colo.
Plymouth Locomotive Wks.,
607 Riggs Ave., Plymouth,
Ohio 142
H. K. Porter Co., Inc., Olly-
ver Bldg., Pittsburgh 22,
Penn.
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
The Whitcomb Locomotive
Co., 940 Park St., Rochelle,
Ill.

LOCOMOTIVES, Kerosene

The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land, Ohio
Baldwin Locomotive Wks.,
940 Simpson Street, Eddy-
stone, Penn.
Brookville Locomotive Wks.,
Brookville, Penn.
Davenport Besler Corp., 2305
Rockingham Road, Daven-
port, Iowa 158
H. K. Porter Co., Inc., 1932
Oliver Bldg., Pittsburgh,
Penn.
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
The Whitcomb Locomotive
Co., 940 Park St., Rochelle,
Ill.

LOCOMOTIVES, Oil

The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land, Ohio
Baldwin Locomotive Wks.,
940 Simpson Street, Eddy-
stone, Penn.
Brookville Locomotive Wks.,
Brookville, Penn.
Davenport Besler Corp., 2305
Rockingham Road, Daven-
port, Iowa 158
The Fate-Root-Heath Co.,
607 Bell St., Plymouth,
Ohio 142
Plymouth Locomotive Wks.,
607 Riggs Ave., Plymouth,
Ohio 142
H. K. Porter Co., Inc., 1932
Oliver Bldg., Pittsburgh,
Penn.
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
The Whitcomb Locomotive
Co., 940 Park St., Rochelle,
Ill.

DIRECTORY

LOCOMOTIVES, Oil-Electric

American Locomotive Co., 30 Church St., New York, 8 N. Y.
The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
Baldwin Locomotive Wks., 940 Simpson Street, Eddystone, Penn.
Davenport Besler Corp., 2305 Rockingham Road, Davenport, Iowa 158
General Electric Co., 1 River Road, Schenectady 5, N. Y.
Heislner Locomotive Works, Erie, Penn.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
The Whitcomb Locomotive Co., 940 Park St., Rochelle, Ill.

LOCOMOTIVES, Steam

American Locomotive Co., 30 Church St., New York 8, N. Y.
Baldwin Locomotive Wks., 940 Simpson Street, Eddystone, Penn.
Davenport Besler Corp., 2305 Rockingham Road, Davenport, Iowa 158
Heislner Locomotive Works, Erie, Penn.
Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh 22, Penn.
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

LOCOMOTIVES, Storage Battery

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
Baldwin Locomotive Wks., 940 Simpson Street, Eddystone, Penn.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
Goodman Manufacturing Co., 4834 S. Halsted, Chicago 9, Ill.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.
The Whitcomb Locomotive Co., 940 Park St., Rochelle, Ill.

LOG WASHERS, Aggregates (See also Scrubbers)

Allen Cone & Mchry. Corp., 120 Broadway, New York 5, N. Y.
Allis-Chalmers Mfg. Co., Milwaukee, Wis. 49, 53
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Chain Belt Co., 1600 W. Bruce St., Milwaukee, Wis.
Eagle Iron Works, 129 Holcomb Ave., Des Moines 4, Iowa 301
Georgia Iron Works, 605 Twelfth St., Augusta, Ga.
Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa 67
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York City 16, N. Y. 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Lippman Engr. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.

McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
Maddox Fdy. & Machine Wks., Archer, Fla.
McKum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
Pioneer Engineering Works Inc., 1515 Central Ave., Minneapolis 13, Minn.
Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis. 11
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Traylor Engr. & Mfg. Co., Allentown, Penn. 7
Universal Eng. Corp., 625 C Ave., W., Cedar Rapids, Iowa
The Webb Corp., 402 E. Broadway, Webb City, Mo.

LUBRICANTS, Grease, Oil, etc.

Acheson Colloids Corp., Port Huron, Mich.
Cities Service Co., 60 Wall Tower, New York 5, N. Y.
Continental Oil Co., Ponca, Okla.
Fiske Brothers Refining Co., Lubriplate Div., 129 Lockwood St., Newark 5, N. J.
Gredag, Inc., P. O. Box 898, Niagara Falls, N. Y.
Gulf Oil Corp., Gulf Refinery Co., 3800 Gulf Bldg., Pittsburgh 30, Penn. 133
Hodson Corp., 5301-11 W. 66th St., Chicago, Ill.
E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penn.
Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.
MacMillan Petroleum Co., 530 W. Sixth St., Los Angeles, Calif.
New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, N. Y.
Pure Oil Co., 35 E. Wacker Drive, Chicago 1, Ill.
Richfield Oil Corp. of New York, 19 W. 50th St., New York 20, N. Y.
Shell Oil Co., 50 West 50th St., New York, N. Y.
Sinclair Refining Co., 630 Fifth Ave., New York, N. Y.
Socony Vacuum Oil Co., Inc., 26 Broadway, New York City, N. Y.
Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif. 43
Standard Oil Co. (New Jersey), 26 Broadway, New York, N. Y.
Standard Oil Co. (Indiana), 910 S. Michigan Ave., Chicago, Ill.
Stewart-Warner Corp. (Alomite Corp.), 1826 W. Diversey Pkwy., Chicago, Ill.
Sun Oil Co., 1608 Walnut St., Philadelphia 3, Penn.
The Texas Co., 135 East 42nd St., New York 17, N. Y. 82
Tide Water Associated Oil Co., 17 Battery Place, New York 4, N. Y.

LUBRICANTS, Wire Rope

Acheson Colloids Corp., Port Huron, Mich.
American Chain & Cable Co., Inc., Wilkes-Barre, Penn.
American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio
Continental Oil Co., Ponca, Okla.

Fiske Brothers Refining Co., Lubriplate Div., 129 Lockwood St., Newark 15, N. J.
Gredag, Inc., P. O. Box 898, Niagara Falls, N. Y.
Gulf Oil Corp., Gulf Refinery Co., 3800 Gulf Bldg., Pittsburgh 30, Penn. 133
Hodson Corp., 5301-11 W. 66th St., Chicago, Ill.
E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penn.
Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.
A. Leachen & Sons Rope Co., 5909 Kennerly Ave., St. Louis 12, Mo. 138
New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, N. Y.
Pure Oil Co., 35 E. Wacker Drive, Chicago 1, Ill.
John A. Roebing's Sons Co., 640 S. Broad, Trenton 2, N. J. 17
Shell Oil Co., 50 West 50th St., New York, N. Y.
Sinclair Refining Co., 630 Fifth Ave., New York, N. Y.
Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif. 43
Standard Oil Co. (Indiana), 910 S. Michigan Ave., Chicago, Ill.
Standard Oil Co. (New Jersey), 26 Broadway, New York, N. Y.
Stewart-Warner Corp., 1826 W. Diversey Pkwy., Chicago, Ill.
Sun Oil Co., 1608 Walnut St., Philadelphia 3, Penn.
The Texas Co., 135 East 42nd St., New York 17, N. Y. 82

LUBRICATING SYSTEMS

Balcrank Inc., Disney St., Cincinnati 9, Ohio
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
The Farval Corp., 3249 E. 80th St., Cleveland 4, Ohio
Gray Co. Inc., Graco Squ., Minneapolis 13, Minn.
Hills McCanna Co., 2349 Nelson St., Chicago 18, Ill.
Hodson Corp., 5301-11 W. 66th St., Chicago, Ill.
Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.
Lincoln Eng. Co., 5701 Natural Bridge, St. Louis 20, Mo.
Oil-Rite Corp., 3420 S. 13th St., Milwaukee 7, Wis.
Rucker-Vaughn Co., 4228 Hollis St., Oakland 8, Calif.
Stewart-Warner Corp., 1826 W. Diversey Pkwy., Chicago, Ill.

MAGNETIC SEPARATORS

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Dings Magnetic Separator Co., 509 E. Smith St., Milwaukee 7, Wis.
Electric Controller & Mfg. Co., 2700 E. 79th St., Cleveland 4, Ohio
Erie Mfg. Co., E. 12th St., Erie, Penn.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Multiplex Concrete Machinery Co., Elmore, Ohio 163
Prater Pulverizer Co., 1829 S. 55th Ave., Chicago 50, Ill.
Separations Eng. Corp., 110 E. 42nd St., New York 17, N. Y.
Sprout, Waldron & Co., Muncy, Penn.
Stearns Magnetic Mfg. Co., 675 S. 28th St., Milwaukee 4, Wis.
The Stearns-Roger Mfg. Co., 1718-1722 California St., Denver 2, Colo.

MANGANESE STEEL PARTS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 46
Auburn Wire Cloth Corp., (Subsidiary of Manganese Steel Forge Co.) Richmond St. & Castor Ave., Philadelphia, Penn.
Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn. 65
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
Electric Steel Fdry. Co., 2141 N. W. 25th Ave., Portland 10, Oregon.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 14
The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Avenue, New York 16, N. Y. 15
Kensington Steel Co., 505 Kensington Ave., Chicago, Ill.
Lukens Steel Co., Coatesville, Penn.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Box 8000-A, Chicago 80, Ill.
Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

MANHOLE COVER AND FRAME FORMS, Concrete

Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kans.
Helmick Foundry-Machine Co., Lock Drawer 71, Fairmont, W. Va.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
Pacific Car & Fdry. Co., 4th and Factory St., Renton, Wash.

MASONRY COLORS

American Fluesit Co., Inc., 635 Rockdale, Cincinnati 29, Ohio
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, Ohio
Ricketson Mineral Color Works, 229 East Wisconsin Ave., Milwaukee, Wis.
Tammis Silica Co., 228 N. La Salle St., Chicago 1, Ill.
Utility Color Co., 377-99 Prelinghuysen Ave., Newark 5, N. J.

MASONRY SAWS

Champion Mfg. Co., 1907 Washington Ave., St. Louis, Mo.
Clipper Mfg. Co., 2800 Warwick, Kansas City 8, Mo.

DIRECTORY

D. J. Murray Mfg. Co.,
Wausau, Wis.
Stone Machinery Co., Inc.,
Manlius, N. Y.

MEASURING DEVICES (See also Weighing Equipment)

Anchor Concrete Mch. Co.,
1191 Fairview Ave., Colum-
bus 8, Ohio 164
Blaw-Knox Co., Farmers,
Bank Bldg., Pittsburgh 22,
Penn. 160
Bonded Scale Co., 2176 S.
Third St., Columbus 7,
Ohio 189
The Conveyor Co., Inc., 3260
East Slauson Ave., Los An-
geles 11, Calif.
Dewey and Almy Chemical
Co., 62 Whittemore Ave.,
Cambridge 40, Mass.
Erie Steel Const. Co., 19th &
Geist Road, Erie, Penn. 192
Garlinghouse Bros., 2416 E.
16th St., Los Angeles 21,
Calif.
Hardinge Co., 240 Arch St.,
York, Penn. 147
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kennedy-Van Saun Mfg. &
Engr. Co., 2 Park Ave.
Bldg., New York City,
N. Y. 14
Kron Co., 1720 Fairfield Ave.,
Bridgeport 5, Conn.
Link-Belt Co., 300 W. Per-
shing Rd., Chicago 9, Ill. 1
Merrick Scale Mfg. Co., 180-
186 Autumn St., Passaic,
N. J. 155
Neptune Meter Co., 50 W.
50th St., New York, N. Y.
Richardson Scale Co., 1939
Bandstra St., Clifton, N. J.
Wheelco Instruments Co., 847
W. Harrison St., Chicago
7, Ill.

MECHANICAL RUBBER GOODS

The American Rubber Mfg.
Co., 1145 Park Ave., Oak-
land 8, Calif.
Boston Woven Hose & Rub-
ber Co., 29 Hampshire St.,
Cambridge, Mass.
Chicago Belting Co., 113-125
N. Green St., Chicago 7,
Ill.
The Cincinnati Rubber Mfg.
Co., Franklin Ave., Nor-
wood Station, Cincinnati
12, Ohio
Continental Rubber Works,
1902 Liberty St., Erie,
Penn.
The Dayton Rubber Mfg. Co.,
2342 W. Riverview Ave.,
Dayton 1, Ohio
The Gates Rubber Co., 999
S. Broadway, Denver 17,
Colo. 30
Goodall Rubber Co., 5 S. 36th
St., Philadelphia 4, Penn.
The B. F. Goodrich Co., Ak-
ron, Ohio 3
Greene, Tweed & Co., 4377
Bronx Blvd., New York 66,
N. Y.
The Goodyear Tire & Rubber
Co., Inc., 1144 E. Market,
Akron, Ohio 9
Hewitt Rubber Div., Hewitt-
Robins Corp., 240 Kensing-
ton Ave., Buffalo 5, N. Y.
The Manhattan Rubber Mfg.,
Div. of Raybestos-Manhat-
tan, Inc., 61 Willett St.,
Passaic, N. J. 59
Manson Glover, 213 Pleasant,
Stoughton, Mass.
Pioneer Rubber Mills, 353
Sacramento St., San Fran-
cisco 11, Calif.
Quaker Rubber Corp., Comly
& Milnor Sts., Philadel-
phia 24, Penn. 12
Republic Rubber Div. Lee
Rubber & Tire Corp., Al-
bert St., Youngstown 1,
Ohio
Thermoid Rubber, Div. of
Thermoid Co., Whitehead
Rd., Trenton 6, N. J.
United States Rubber Co.,
1230 6th Ave., New York
20, N. Y.

METERS, Electric, Water

Builders - Providence, Inc.,
9 Coddling St., Providence
1, R. I.
General Electric Co., 1 River
Rd., Schenectady 5, N. Y.
J. B. T. Instruments, Inc.,
441 Chapel St., New Haven
8, Conn.
Moore Steam Turbine Co.,
Willsville, N. Y.
Neptune Meter Co., 50 W.
50th St., New York 20,
N. Y.
Westinghouse Elec. & Mfg.
Co., E. Pittsburgh, Penn.
Wheelco Instrument Co., 847
W. Harrison St., Chicago
7, Ill.

METERS, Fluid

Automatic Liquid Meter Co.,
1372 E. 15th St., Los An-
geles 21, Calif.
Bailey Meter Co., 1050 Ivan-
hoe Rd., Cleveland 10 Ohio
The Bristol Company, Water-
bury 91, Conn.
The Brown Instrument Co.,
Div. of Minneapolis-Honey-
well Regulator Co., 4444
Wayne Ave., Philadelphia
44, Penn. 50
Builders - Providence, Inc.,
9 Coddling St., Providence,
R. I.
The Foxboro Co., Neponset
St., Foxboro, Mass.
The Hays Corp., 642 8th St.,
Michigan City, Ind.
Hetherington & Berner Inc.,
101 Kentucky Ave., Indian-
apolis 17, Ind.
Moore Steam Turbine Co.,
Willsville, N. Y.
Neptune Meter Co., 50 W.
50th St., New York 20,
N. Y.
Wheelco Instrument Co., 847
W. Harrison St., Chicago
7, Ill.
Worthington Pump & Mch.
Corp., Harrison, N. J.

MILLS, Ball

Allen Cone & Mch. Corp.,
120 Broadway, New York 5,
N. Y.
Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49
The Bonnot Co., Mulberry
Rd., S.E., Canton, Ohio
Colorado Iron Wks. Co., 1624
17th St., Denver 2, Colo.
Denver Equipment Co., P.O.
Box 5268, Denver 17, Colo. 146
The Elmcro Corp., P. O. Box
300, Salt Lake City 8, Utah
Groch Engr. Co., 628 W. 9th
St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch
St., York, Penn. 156
Joshua Hendy Iron Wks.,
Box 37, Sunnyvale, Calif.
International Engr., Inc.,
Bolander Ave., Dayton 1,
Ohio
Kennedy-Van Saun Mfg. &
Engr. Co., 2 Park Ave.,
New York 16, N. Y. 15
The Mine & Smelter Supply
Co., P. O. Box 5270, Termi-
nal Station, Denver 17,
Colo.
Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.
Nordberg Mfg. Co., 3083 S.
Chase Ave., Milwaukee 7,
Wis. 22
Palo Myers Inc., 81 Reade
St., New York 17, N. Y.
H. K. Porter Co., Oliver
Bldg., Pittsburgh 22, Penn.
W. A. Riddell Corp., Bucy-
rus, Ohio
F. L. Smidth & Co., 11 W.
42nd St., New York 18,
N. Y. 71
Southwestern Eng. Co., 4800
Santa Fe Ave., Los
Angeles 11, Calif.
The Stearns-Roger Mfg. Co.,
1718-22 California St., Den-
ver 2, Colo.
Straub Mfg. Co., 507 Chest-
nut St., Oakland 7, Calif. 28
Struthers Wells Corp., 1003
Pennsylvania Ave. W.,
Warren, Penn.

Traylor Eng. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn. 7
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.

MILLS, Blade, Washing

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49
Kennedy-Van Saun Mfg. &
Engr. Corp., 2 Park Ave.,
New York 16, N. Y. 15
Lewistown Fdy. & Machine
Co., Lewistown, Penn.
McLanahan & Stone Corp.,
200 Wall St., Hollidays-
burg, Penn. 139
Maddox Fry & Machine
Wks., Archer, Fla.
Nordberg Mfg. Co., 3083 S.
Chase Ave., Milwaukee 7,
Wis. 22
Traylor Eng. & Mfg. Co.,
Allentown, Penn. 7

MILLS, Compartment

Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 49
Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
Kennedy-Van Saun Mfg. &
Engr. Co., 2 Park Ave.,
New York 16, N. Y. 15
Nordberg Mfg. Co., 3083 S.
Chase Ave., Milwaukee 7,
Wis. 22
F. L. Smidth & Co., 11 W.
42nd St., New York 18,
N. Y. 71
Straub Mfg. Co., 507 Chest-
nut St., Oakland 7, Calif. 28
Traylor Eng. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn. 7
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.

MILLS, Grinding

Allis-Chalmers Mfg. Co., Mil-
waukee, Wis. 49
American Pulverizer Co., 1249
Mackind Ave., St. Louis
10, Mo. 58
The Babcock & Wilcox Co.,
85 Liberty St., New York
6, N. Y. 74
The Bonnot Co., Mulberry
Rd. S.E., Canton, Ohio.
Bradley Pulverizer Co., 123
S. 3rd St., Allentown,
Penn. 146
Buffalo Hammer Mill Corp.,
27 Washington St., New
York 3, N. Y.
Colorado Iron Works Co.,
1624 17th St., Denver 2,
Colo.
Denver Equipment Co., P.O.
Box 5268, Denver 17, Colo. 146
Dixie Mch. Mfg. Co., 4200
Goodfellow, St. Louis 20,
Mo. 47
The Elmcro Corp., P. O. Box
300, Salt Lake City 8, Utah
Enterprise Engine & Fdy.
Co., 18th & Florida Sts.,
San Francisco 10, Calif.
Groch Engr. Co., 628 W. 9th
St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
Hamilton Mill & Mining
Equipment Distributors,
600 16th St., Oakland 12,
Calif.
International Engr., Inc.,
Bolander Ave., Dayton 1,
Ohio
International Pulverizer
Corp., New Albany Rd.,
Moorestown, N. J.
Kennedy-Van Saun Mfg. &
Engr. Co., 2 Park Ave.,
New York 16, N. Y. 15
The Mine & Smelter Supply
Co., P. O. Box 5270, Termi-
nal Station, Denver 17,
Colo.
Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.
Nordberg Mfg. Co., 3083 S.
Chase Ave., Milwaukee 7,
Wis. 22
Palo Myers Inc., 81 Reade
St., New York 17, N. Y.
H. K. Porter Co., Oliver
Bldg., Pittsburgh 22, Penn.

Prater Pulverizer Co., 1829
S. 55th Ave., Chicago 50,
Ill.
Pennsylvania Crusher Co.,
Liberty Trust Bldg., Phila-
delphia 7, Penn. 72
Raymond Pulverizer Div.,
Combustion Engr. Co.,
Inc., 1319 N. Branch St.,
Chicago 22, Ill. 61
W. A. Riddell Corp., 201 E.
Warren, Bucyrus, Ohio
F. L. Smidth & Co., 11 W.
42nd St., New York 18,
N. Y. 71
The Stearns-Roger Mfg. Co.,
1720 Calif. St., Denver 2,
Colo.
Straub Mfg. Co., 507 Chest-
nut St., Oakland 7, Calif. 28
Sturtevant Mill Co., 41 Har-
rison Sq., Boston 22,
Mass. 2nd Cover
Traylor Eng. & Mfg. Co.,
Tenth & Mill Sts., Allen-
town, Penn. 7
Vulcan Iron Works, 700 S.
Main St., Wilkes-Barre,
Penn.
Williams Patent Crusher &
Pulverizer Co., 2701 N.
Broadway, St. Louis 6,
Mo. 27

MILLS (Laboratory)

Allis-Chalmers Mfg. Co.,
Milwaukee 1, Wis. 49
American Pulverizer Co., 1249
Mackind Ave., St. Louis
10, Mo. 58
Buffalo Hammer Mill Corp.,
27 Washington St., Buf-
falo 3, N. Y.
Burrell Technical Supply Co.,
1936-42 5th Ave., Pittsburgh
19, Penn.
Denver Equipment Co., P.O.
Box 5268, Denver 17, Colo. 146
Fisher Scientific Co., 717
Forbes St., Pittsburgh 19,
Penn.
The Gallagher Co., 48 S.
Second East St., Salt Lake
City 1, Utah 140
Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
International Engr., Inc.,
Bolander Ave., Dayton 1,
Ohio
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
The Mine & Smelter Supply
Co., P. O. Box 5270 Termi-
nal Station, Denver 17,
Colo.
Morse Bros. Mch. Co., 2900
Broadway, Denver 1, Colo.
H. K. Porter Co., Inc., Oliver
Bldg., Pittsburgh 22, Penn.
Prater Pulverizer Co., 1829
S. 55th Ave., Chicago 50,
Ill.
Raymond Pulverizer Div.,
Combustion Engineering
Co., Inc., 1319 N. Branch
St., Chicago 22, Ill. 61
The Stearns-Roger Mfg. Co.,
1720 Calif. St., Denver 2,
Colo.
Straub Mfg. Co., 507 Chest-
nut St., Oakland 7, Calif. 28
Sturtevant Mill Co., 41 Har-
rison Sq., Boston 22,
Mass. 2nd Cover
Williams Patent Crusher &
Pulverizer Co., 2701 N.
Broadway, St. Louis 6, Mo. 27

MILLS (Pug)

Allis-Chalmers Mfg. Co., Mil-
waukee, Wis. 49
The C. O. Bartlett & Show
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
The Bonnot Co. Mulberry
Rd., S. E., Canton, Ohio
Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
International Engr., Inc.,
Bolander Ave., Dayton 1,
Ohio
Iowa Mfg. Co., 916 16th St.
N. E., Cedar Rapids, Iowa 67
Kennedy-Van Saun Mfg. &
Engr. Co., 2 Park Ave.,
New York, N. Y. 15
Link-Belt Co., 2410 W. 18th
St., Chicago 8, Ill. 1

DIRECTORY

Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7

MILLS (Rod)

Allen Cone & Mchry. Corp., 120 Broadway, New York 5, N. Y.
Allis-Chalmers Mfg. Co., Milwaukee, Wis. 49, 53
The Bonnot Co., Mulberry Rd., S. E., Canton, Ohio
Colorado Iron Wks. Co., 1624 17th St., Denver 2, Colo.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
The Elmcro Corp., P. O. Box 300, Salt Lake City 8, Utah
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave., New York 16, N. Y. 15
The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo.
Morse Bros. Mchry. Co., P.O. Box 1708, Denver 1, Colo.
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
The Stearns-Roger Mfg. Co., 1718-22 California St., Denver 2, Colo.
Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

MILLS (Roll)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Babcock & Wilcox Co., 85 Liberty St., New York, N. Y. 74
Bradley Pulverizer Co., 123 So. 3rd St., Allentown, Penn. 146
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Raymond Pulverizer Div., Combustion Eng. Co., Inc., 1315 North Branch St., Chicago 22, Ill. 61
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71
Sturtevant Mill Co., 41 Harrison Sq., Boston 22, Mass. 2nd Cover
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7

MILLS (Tube)

Allis-Chalmers Mfg. Co., Milwaukee, Wis. 49, 53
The Bonnot Co., Mulberry Rd., S. E., Canton, Ohio
Colorado Iron Wks. Co., 1624 17th St., Denver 2, Colo.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
The Elmcro Corp., P. O. Box 300, Salt Lake City 8, Utah

Groch Engineering Co., 628 W. 9th St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
International Engr., Inc., Bolander Ave., Dayton 1, Ohio
Kennedy-Van Saun Mfg. & Engr. Co., 2 Park Ave., New York, N. Y. 14, 15
The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver 17, Colo.
Morse Bros. Mchry. Co., P.O. Box 1708, Denver 1, Colo.
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71
Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

MILLS, Coal

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
Gründler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kensington Steel Co., 505 Kensington Av., Chicago 28, Ill.
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
Raymond Pulverizer Div., Combustion Engineering Co., Inc., 1315 N. Branch St., Chicago 12, Ill. 61
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71
Strong-Scott Mfg. Co., Taft & Kennedy St., Minneapolis, Minn.
Sturtevant Mill Co., 41 Harrison Sq., Boston 22, Mass. 2nd Cover
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
Williams Patent Crusher & Pulverizer Co., 2701 North Broadway, St. Louis 6, Mo. 27

MILLS, Hammer

(See Crushers, Hammer)

MIXER BODIES, Truck

(See Bodies)

MIXERS, Concrete

(See Concrete Mixers)

MIXERS, Plaster

Chain Belt Co., 1649 W. Bruce St., Milwaukee, Wis.
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kans.
Concrete Transport Mixer Co., 659 Rosedale Ave., St. Louis 12, Mo. 191
Construction Machinery Co., Glenwood & Vinton St., Waterloo, Iowa
Dodson Mfg. Co., Inc., 1463 Barwise, Wichita 2, Kans. 160
Dunning & Boschert Press Co., 382 W. Water St., Syracuse 4, N. Y.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 158
Equipment Engineering Co., St. Charles, Ill.

Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo. 190
Gilson Bros Co., Fredonia, Wis. 159
Gründler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
International Engineering, Inc., 1145 Bolander Ave., Dayton 8, Ohio
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Koehring Co., 30th & Concordia Ave., Milwaukee, Wis.
Kwik-Mix Co., Port Washington, Wis.
Multiplex Concrete Mchry. Co., Elmore, Ohio 63
Patterson Fdry. & Mach. Co., St. George St., East Liverpool, Ohio
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Ransome Mchry. Co., 42 Thomas St., Dunellen, N. J.
Stearns Mfg. Co., Inc., Adrian, Mich.
Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28

MIXERS, Pugmill

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Barber-Greene Co., 631 W. Park Ave., Aurora 11, Ill. 16
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Bonnot Co., Mulberry Rd. S.E., Canton, Ohio
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Concrete Transport Mixer Co., 659 Rosedale Ave., St. Louis 12, Mo. 191
Continental Gin Co., Industrial Div., 4500 5th Ave. So., Birmingham, Ala. 136
The F. D. Cumber & Son Co., 605 Keith Bldg., Cleveland 15, Ohio
Gründler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
Hetherington & Berner, Inc., 701 Kentucky Ave., Indianapolis 7, Ind.
Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Iowa
International Engr., Inc., Bolander Ave., Dayton 1, Ohio
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Kwik-Mix Co., Port Washington, Wis.
Lancaster Iron Wks., Inc., 550 S. Prince St., Lancaster, Penn.
Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill. 1
The McCarter Iron Wks., Inc., Mill & Washington Sts., Norristown, Penn.
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
Pioneer Engr. Wks., Inc., 1515 Central Ave., Minneapolis 13, Minn.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
W. A. Riddell Corp., Bucyrus, Ohio
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
Standard Steel Corp., 5001 So. Boyle Ave., Los Angeles 11, Calif.
Warren Brothers Roads Co., 38 Memorial Drive, Cambridge 42, Mass.

MIXERS, Slurry

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Bonnot Co., Mulberry Rd. S.E., Canton, Ohio
Chain Belt Co., 1600 W. Bruce St., Milwaukee, Wis.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146

The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
International Engr., Inc., Bolander Ave., Dayton 1, Ohio
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
Manitowoc Engr. Wks., Manitowoc, Wis. 42
Omega Machine Co., 9 Codding St., Providence 1, R. I.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
W. A. Riddell Corp., Bucyrus, Ohio
F. L. Smidth & Co., 60 E. 42nd St., New York 17, N. Y. 68, 71
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Struthers Wells Corp., 1003 Pennsylvania Ave., West Warren, Penn.

MOLDS, Briquette, Cement (See Laboratory Apparatus)

MONITORS, Hydraulic Stripping, Excavating

Allied Steel Products, Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio
Georgia Iron Works, 605 12th St., Augusta, Ga.
Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
Universal Nozzle Co., 2939 N. Pennsylvania St., Indianapolis 5, Ind.

MORTAR COLORS

E. I. DuPont de Nemours & Co., Inc., Nemours Bldg., Wilmington 98, Del. 66
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
Geo. S. Mepharm Corp., E. St. Louis, Mo.
Rickertson Mineral Color Works, 229 Wisconsin Ave., Milwaukee 2, Wis.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Tammia Silica Co., 228 N. La Salle St., Chicago 1, Ill.
Utility Color Co., 377 Frelinghuysen Ave., Newark 5, N. J.

MORTAR MIXERS

C. H. & E. Mfg. Co., 3849 W. Palmer St., Milwaukee 12, Wis.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kans.
Concrete Transport Mixer Co., 659 Rosedale Ave., St. Louis 12, Mo. 191
Construction Mchry. Co., Glenwood & Vinton, Waterloo, Iowa
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo. 190
Gilson Bros. Co., Fredonia, Wis. 159
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Kwik-Mix Co., Port Washington, Wis.
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
Multiplex Concrete Mchry. Co., Elmore, Ohio 63
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh, Penn.
Ransome Mchry. Corp., 42 Thomas St., Dunellen, N. J.

MOTOR TRUCK CONCRETE MIXERS (See Bodies)

MOTOR TRUCK DRIVES AND DIFFERENTIALS, Special

Chicago Belting Co., 113 N. Green St., Chicago 7, Ill.

DIRECTORY

Cook Bros. Equipment Co., 3330 San Fernando Rd., Los Angeles 41, Calif.
 Davey Compressor Co., Walnut & Maple Sts., Kent, Ohio
 Four Wheel Drive Auto Co., Clintonville, Wis.
 Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
 Henneuse Engr. Co., 400 Monroe St., Marion, Ohio
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Six-Wheels, Inc., 1550-84 E. 20th St., Los Angeles 11, Calif.
 Thornton Tandem Co., 8701-79 Grinnell Ave., Detroit 13, Mich.
 The Truckstell Co., 1672 Union Commerce Bldg., Cleveland 14, Ohio
 The Tractor Corp., 156 Wilson Ave., Newark 5, N. J.

MOTOR TRUCKS

The Autocar Co., Ardmore, Penn.
 The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio
 Chevrolet Motor Div. of General Motors Corp., General Motors Bldg., Detroit, Mich.
 Continental Motors Corp., Detroit, Mich.
 Cook Bros. Equipment Co., 3330 San Fernando Rd., Los Angeles 41, Calif.
 Diamond "T" Motor Car Co., 4401 W. 26th St., Chicago 23, Ill.
 Dodge Division of Chrysler Corp., 7500 Jos. Campau, Detroit 31, Mich.
 Dart Truck Co., 2628 Oak Sts., Kansas City, Mo.
 The Euclid Road Machinery Co., 1361 Chardon Road, Cleveland, Ohio
 Federal Motor Truck Co., 5780 Federal St., Detroit, Mich.
 Ford Motor Co., 3574 Schaefer Rd., Dearborn, Mich.
 Four Wheel Drive Auto Co., Clintonville, Wis.
 Gar Wood Industries, Inc., 7924 Riopelle St., Detroit, Mich.
 GMC Truck & Coach Div. General Motors Corp., South Blvd., Pontiac, Mich.
 International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.
 Koehring Co., 3026 W. Concordia Ave., Milwaukee, Wis.
 Mack Trucks Inc., 350 Fifth Ave., New York 1, N. Y.
 Marmon-Herrington Co., 1511 W. Washington St., Indianapolis 8, Ind.
 Oshkosh Motor Truck Inc., 2302 Oregon St., Oshkosh, Wis.
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Reo Motors, Inc., 1331 South Washington Ave., Lansing, Mich.
 Six Wheels Inc., 1559-1584 E. 20th St., Los Angeles 11, Calif.
 Sterling Motor Truck Co., 2021 S. 54th St., Milwaukee, Wis.
 The Studebaker Corp., 635 S. Main St., South Bend, Ind.
 Thornton-Tandem Co., 8701-79 Grinnell Ave., Detroit, Mich. (Special Drives)
 The Truckstell Co., 1672 Union Commerce Bldg., Cleveland 14, Ohio
 Walter Motor Truck Co., 1001-19 Irving Ave., Ridgewood, Brooklyn 27, N. Y.
 Ward LaFrance Truck Div., Elmira, N. Y.
 The White Motor Co., 642 E. 79th St., Cleveland, Ohio

MOTORS

(See Electric Motors)

MOVERS, Car

(See Car Movers)

NATURAL GAS ENGINES

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49
 The Buda Co., 15401 Commercial, Harvey, Ill.
 Caterpillar Tractor Co., Peoria 8, Ill. 41
 Climax Eng. Co., 1812 S. 4th St., Clinton, Iowa
 The Cooper-Bessemer Corp., Mt. Vernon, Ohio
 Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 Hercules Motors Corp., 11th St., S.E., Canton, Ohio
 Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill. 23
 Minneapolis-Moline Power Implement Co., Box 1050, Minneapolis 1, Minn.
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
 Novo Engine Co., 702 Porter St., Lansing, Mich.
 Waukesha Motor Co., P. O. Box 379, Waukesha, Wis.
 Witte Eng. Wks., Div. of Oil Well Supply Co., 1600 Oakland, Kansas City, Mo.
 Worthington Pump & Machinery Corp., 744 Broad St., Newark 2, N. J.

NOZZLES, Washing

Bayley Blower Co., 1817 S. 66th St., Milwaukee 14, Wis.
 Blinks Mfg. Co., 3114-40 Carroll Ave., Chicago 12, Ill.
 Chain Belt Co., 1649 W. Bruce St., Milwaukee, Wis.
 Deister Machine Co., 1933 E. Wayne St., Ft. Wayne 4, Ind. 149
 Georgia Iron Wks., 605 12th St., Augusta, Ga.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Spraying Systems Co., 4021 W. Lake St., Chicago 24, Ill.

OFFBEARERS, Power (Concrete Block)

Stearns Mfg. Co., Inc., Adrian, Mich.
 Besser Mfg. Co., Alpena, Mich. 170, 183

OIL BURNERS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49
 The Babcock & Wilcox Co., 85 Liberty Street, New York 6, N. Y. 74
 W. N. Best Engr. Co., 90 West St., New York 6, N. Y.
 Diamond Iron Wks., Inc. & The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
 Enterprise Engine & Foundry Co., 18th & Florida St., San Francisco, Calif.
 Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
 The Heli Company, 3000 W. Montana St., Milwaukee 1, Wis.
 Kennedy - Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
 Macleod Co., 2232-40 Bogen St., Cincinnati 22, Ohio
 Ray Oil Burner Co., 401-499 Bernal Ave., San Francisco 12, Calif.
 W. A. Riddell Corp., Bucyrus, Ohio
 Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
 F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
 Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.

OIL FILTERS

Briggs Clarifier Co., 1339 Wisconsin Ave., N. W., Washington 7, D. C.
 Dollinger Corp. (Formerly Staynew Filter Corp.), 11 Centre Pk., Rochester 4, N. Y.
 Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.
 W. G. B. Oil Clarifier, Inc., Kingston, N. Y.
 Winslow Sales Co., 406 Montgomery, San Francisco, Calif.
 Wix Accessories Corp., Ozark St., Gastonia, N. C.

OIL, Lubricants (See Lubricants)

PACKING MACHINERY (See also Bagging Machines)

Bagpak, Inc., 220 E. 42nd St., New York 17, N. Y.
 Lippman Engr. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
 St. Regis Paper Co., 230 Park Ave., New York 17, N. Y. 19
 F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
 Syntron Co., 450 Lexington Ave., Homer City, Penn. 150

PALLETS, Steel, Wood for Concrete Products

Besser Mfg. Co., Alpena, Mich. 170, 183
 Frank J. Blatt Sales Co., Inc., Rattlesnake, Florida
 Chase Fdry. & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 The Commercial Shearing & Stamping Co., Box 719, Youngstown 1, Ohio 194
 Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga. 169, 191
 Delaware Industries, Inc., 1406 E. 18th St., Muncie, Ind.
 Fabricating & Machinery, Inc., 3226 5th Ave., S., Birmingham 5, Ala. 196
 Fleming Mfg. Co., Inc., 4985 Fylet Ave., St. Louis 9, Mo. 190
 Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
 F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Florida 165
 Florida Die Casting Foundry, Orlando, Florida
 E. B. Kelly Co., Farmingdale, N. J.
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
 Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
 Multiplex Concrete Machinery Co., Elmore, Ohio 163
 R. S. Reed Corp., E. Hoffman St., Three Rivers, Mich. 164
 Southeast Steel Sales Co., 100 W. Amelia St., Orlando, Fla. 160
 Stearns Mfg. Co., Inc., Adrian, Mich.
 Truscon Steel Co., Albert St., Youngstown 1, Ohio
 Universal Concrete Machinery Co., 297 S. High St., Columbus 15, Ohio
 The Yale & Towne Mfg. Co., Philadelphia Div., 4530 Tacony St., Philadelphia 24, Penn.

PANEL BOARDS, Electric (See Electrical Equipment & Supplies)

PANS, GRINDING, Wet and Dry

The Bonnot Co., Mulberry Rd., S. E., Canton, Ohio

Eagle Iron Works, 129 Holcomb, Des Moines 4, Iowa 301
 International Engineering, Inc., 1145 Bolander Ave., Dayton 8, Ohio
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Lewistown Foundry & Machine Co., 16 Elizabeth, Lewistown, Penn.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh, Penn.
 W. A. Riddell Corp., Bucyrus, Ohio
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7

PANS, APRON, CONVEYOR (See Conveyors, Apron)

PEBBLES (See Grinding Pebbles)

PERFORATED METAL

Acme Wire & Iron Works, 3527 E. Canfield Ave., Detroit 7, Mich.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49
 Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.
 Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Cross Eng. Co., Carbondale, Penn.
 Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y. 148
 The Harrington & King Perforating Co., 5650 Fillmore St., Chicago 44, Ill. 148
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
 Kennedy - Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
 Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 Nortmann-Duffke Co., 2740 S. 32nd St., Milwaukee, Wis.
 Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Box 8000-A, Chicago 80, Ill. 6
 Standard Stamping & Perforating Co., 3139 W. 49th Pl., Chicago, Ill.
 W. Toeffer & Sons, Inc., 1450 E. Park Place, Milwaukee 11, Wis.
 Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y. 20

PHOTOELECTRIC CELLS

General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.
 RCA Victor Div. of Radio Corp. of America, Front & Cooper Sts., Camden, N. J.
 Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

PILLOW BLOCKS (See Blocks, Pillow)

PIPE, Asbestos

Johns-Manville, 22 E. 40th St., New York 16, N. Y.

PIPE, Dredge (Standard)

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
 American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45

DIRECTORY

Armco Drainage & Metal Products, Inc., 703 Curtis Street, Middletown, Ohio
American Steel Dredge Co., Inc., 2500 Taylor St., Fort Wayne, Indiana
Birdsboro Steel Fdry & Machine Co., 1941 Furnace St., Birdsboro, Penn.
Lancaster Iron Wks., Inc., 550 S. Prince St., Lancaster, Penn.

Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Naylor Pipe Co., 1237 E. 92nd St., Chicago 19, Ill.
Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Taylor Forge & Pipe Works, Box 485, Chicago, Ill.

PIPE FITTINGS (See also Dredge Pipe and Fittings)

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
Armco Drainage & Metal Products, Inc., 703 Curtis Street, Middletown, Ohio
Band-It Co., 2536 Walnut St., Denver 5, Colo.
Dresser Mfg. Div. Dresser Industries, Inc., 41 Fisher Ave., Bradford, Penn.
The Flori Pipe Co., 629 East Red Bud, St. Louis, Mo.
Georgia Iron Works, 605 12th St., Augusta, Ga.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Naylor Pipe Co., 1237 E. 92nd St., Chicago 19, Ill.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh, Penn.
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill. 6
Taylor Forge & Pipe Wks., Box 485, Chicago, Ill.
Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y.
Victaulic Corp. of America, 30 Rockefeller Plaza, New York 20, N. Y.
R. D. Wood & Co., 400 Chestnut St., Philadelphia, Penn.

PIPE MOLDS & MACHINES, Concrete

Atlas Steel Construction Co., 42 Dutchess St., Irvington, N. Y.
Concrete Equipment Co., Holland, Mich.
Concrete Pipe Mch. Co., 9th & Division St., Sioux City 19, Iowa
Flint & Walling Mfg. Co., Inc., R. & L. Div., Kendallville, Ind.
Lock Joint Pipe Co., 150 Rutledge Ave., East Orange, N. J.
Quinn Wire & Iron Works, Boone, Iowa
Universal Concrete Pipe Co., 297 S. High St., Columbus 15, Ohio

PIPE, Rubber Lined

The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.
Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Penn.
The Manhattan Rubber Mfg. Div. of Raybestos Manhattan, Inc., 61 Willett St., Passaic, N. J. 59

PLANERS, Shale

Eagle Iron Wks., 129 Holcomb, Des Moines 4, Iowa 301
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Stephens-Adams Mfg. Co., 7 Ridgeway, Aurora, Ill.

PLASTER MACHINERY

J. B. Ehsam & Sons Mfg. Co., Enterprise, Kans. 158
The Her-Born Eng. Mfg. Co., Box 666, Sandusky, Ohio
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass. 2nd Cover

PLASTER MIXERS (See Mixers, Plaster)

PLATE STEEL (See Steel Plate)

PNEUMATIC CONVEYORS (See Air Conveyors)

PNEUMATIC TOOLS (See also Drills, Rock)

Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y. 44
The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland, Ohio
Davey Compressor Co., 266 N. Water St., Kent, Ohio
Hardsoc Pneumatic Tool Co., 225 S. Benton St., Ottumwa, Iowa
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Rucker-Vaughn Co., 4228 Hollis St., Oakland 8, Calif.
Schramm Inc., Virginia Ave., West Chester, Penn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Worthington Pump & Machinery Corp., 37 Appleton St., Holyoke, Mass.

PONTOONS, Dredge and Pipe

American Steel Dredge Co., Inc., 2511 W. Taylor St., Fort Wayne, Ind.
Armco Drainage & Metal Products, Inc., 703 Curtis Street, Middletown, Ohio
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Greenville Mfg. Wks., Greenville, Ohio
Maddox Foundry & Machine Works, Archer, Fla.
Manitowoc Eng. Works, Manitowoc, Wis. 42
Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Millville Iron Wks., Inc., 6th St. & Florence Ave., Millville, N. J.
Naylor Pipe Co., 1230 E. 92nd St., Chicago 19, Ill.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Penn.
Sedgwick & Stanhope, 15 S. William St., New York 4, N. Y.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.

PORTABLE AGGREGATES PLANTS, Crushing & Screening Plants (See Crushing & Screening Plants, Portable)

POWDER, Blasting (See Explosives & Dynamite)

POWER CONTROL UNITS (Tractor)

Bucyrus-Erie Co., South Milwaukee, Wis. 4th cover
Caterpillar Tractor Co., Peoria 8, Ill. 41

Gar Wood Industries Inc., 7924 Riopelle St., Detroit 11, Mich.
The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis.
Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
Isaacson Iron Works, 2917 E. Marginal Way, Seattle 14, Wash.
La Plant - Choate Mfg. Co., Cedar Rapids, Iowa 46
R. G. LeTourneau, Inc., 2301 N. Adams St., Peoria 3, Ill.
Southwest Welding & Mfg. Co., 3201 W. Mission Rd., Alhambra, Calif.

POWER STATION EQUIPMENT

Allen - Sherman - Hoff Co., 1435 Locust St., Philadelphia 2, Penn. 78
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Babcock & Wilcox Co., 85 Liberty St., New York, N. Y. 74
Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
The Cooper-Bessemer Corp., Sandusky St., Mt. Vernon, Ohio
Electric Machinery Mfg. Co., 1336 N.E. Tyler St., Minneapolis 13, Minn.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
International Diesel Electric Co., Inc., 13-02 44th Ave., Long Island City 1, N. Y.
I-T-E Circuit Breaker Co., Nineteenth & Hamilton Sts., Philadelphia 30, Penn.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Nordberg Mfg. Co., 3083 Chase Ave., Milwaukee, Wis. 22
Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
Robins Conveyors, Inc. (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
Southwestern Engr. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
Stephens-Adams Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass. 2nd Cover
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

PRECIPITATORS, Dust, Electrical (See Dust Collectors, Electrical)

PREHEATERS, for Kilns, etc.

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Ellernan Co., 203 Continental Bank Bldg., Salt Lake City, Utah
McGann Mfg. Co., Inc., Box 1187, York, Penn.
Kennedy - Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York, N. Y. 14, 15
The Macleod Co., 2236 Bogen St., Cincinnati 22, Ohio
Nordberg Mfg. Co., 3083 Chase Ave., Milwaukee, Wis. 22
W. A. Riddell Corp., Bucyrus, Ohio
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7

PROPORTIONING EQUIPMENT (See also Batching Equipment; Conveyors, Weighing)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, Ohio
Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 100
The Bonnot Co., Mulberry St., Canton 2, Ohio
Builders - Providence, Inc., 9 Coddling St., Providence 1, R. I.
Butler Bin Co., Waukesha, Wis.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Erie Steel Construction Co., Geist Rd. and NKP Railroad, Erie, Penn. 192
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
Hills - McCanna Co., 2349 Nelson St., Chicago 18, Ill.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
C. S. Johnson Co., Champaign, Ill.
Kron Co., 1720 Fairfield Ave., Bridgeport 5, Conn.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
Merrick Scale Mfg. Co., 180-186 Autumn St., Passaic, N. J. 156
Noble Co., 1860 7th St., Oakland 7, Calif.
Omega Machine Co., 9 Coddling St., Providence 1, R. I.
Richardson Scale Co., Clifton, N. J.
Sackrete, Inc., Apple & Vandalla Sts., Cincinnati 23, Ohio
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adams Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Synton Co., 450 Lexington Ave., Homer City, Penn. 150
Toledo Scale Co., Telegraph Rd., Toledo 12, Ohio

PROTECTIVE COATINGS

American Fluorealt Co., Inc., 635 Rockdale, Cincinnati, Ohio
The Dow Chemical Co., Midland, Mich.
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
The B. F. Goodrich Co., Akron, Ohio 3
Haynes Products Co., 4007 Farnam St., Omaha, Neb.
Johns-Manville, 22 E. 40th St., New York 16, N. Y.
Koppers Co., Inc., Koppers Building, Pittsburgh, Penn.
Lasting Products Co., 200 S. Franklinton Rd., Baltimore 23, Md.
Prufcoat Laboratories, Inc., 63 Main St., Cambridge 42, Mass.
Pure Oil Co., 35 E. Wacker Drive, Chicago, Ill.
Qulgey Co., Inc., 56 W. 45th St., New York, N. Y.
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Standard Oil Co. (Indiana), 910 S. Michigan Ave., Chicago, Ill.
Turco Products Inc., 6135 S. Central Ave., Los Angeles 1, Calif.
Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y.
Wall - Colmonoy Corp., 720 Fisher Bldg., Detroit, Mich.

PULLERS, Car (See Car Movers)

DIRECTORY

PULLEYS, Clutch

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Continental Gin Co., Industrial Div., 4500 5th Ave. So., Birmingham, Ala. 136
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
W. A. Jones Fdy. & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
Kent Machine Co., Cuyahoga Falls, Ohio 187
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
W. A. Riddell Corp., Bucyrus, Ohio.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Webster Mfg., Inc., Tiffin, Ohio
T. B. Wood's Sons Co., 5th Ave., Chambersburg, Penn.

PULLEYS, Conveyor and Elevator

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview Ave., Columbus 7, Ohio 189
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala. 136
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 158
Farrel-Birmingham Co., Inc., Ansonia, Conn.
General Conveyor & Mfg. Co., 3601 Salina St., St. Louis 18, Mo.
George Haiss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
R. R. Howell Co., P.O. Box 264, Minneapolis, Minn.
Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Iowa
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
W. A. Jones Fdy. & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
Kent Machine Co., Cuyahoga Falls, Ohio 187
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
Lovejoy Flexible Coupling Co., 5037 W. Lake St., Chicago 44, Ill.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
W. A. Riddell Corp., Bucyrus, Ohio.
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.
Rockwood Mfg. Co., 1801 English Ave., Indianapolis, Ind.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Sprout, Waldron, Muncy, Penn.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
The Webb Corp., 402 E. Broadway, Webb City, Mo.

Webster Mfg., Inc., Tiffin, Ohio
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.
T. B. Woods Sons Co., 5th Ave., Chambersburg, Penn.

PULLEYS, Magnetic (See also Magnetic Separators)

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Dings Magnetic Separator Co., 509 E. Smith St., Milwaukee 7, Wis.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Stearns Magnetic Mfg. Co., 675 S. 28th St., Milwaukee 4, Wis.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

PULP DENSITY CONTROLLERS

The Bristol Co., Waterbury 91, Conn.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y.
The Foxboro Co., Neponset St., Foxboro, Mass.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
The Mine & Smelter Supply Co., Box 5270, Terminal Annex, Denver 17, Colo.

PULVERIZER FUEL SYSTEMS (See also Coal Pulverizing Equipment)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kennedy Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Raymond Pulverizer Div., Combustion Engineering Co., Inc., 1319 N. Branch St., Chicago, Ill. 61
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
Strong-Scott Mfg. Co., 451 Taft St., N.E., Minneapolis 13, Minn.
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo. 27

PULVERIZER PARTS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo. 58
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
Bradley Pulverizer Co., 123 S. Third St., Allentown, Penn. 146
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville 3, Tenn.
Dixie Machinery Mfg. Co., 4200 Goodfellow, St. Louis 20, Mo. 47
Eagle Crusher Co., Inc., 900 Harding Way East, Gallion, Ohio
The Frog, Switch & Mfg. Co., Carlisle, Penn. 150

Gilson Bros. Co., Freedonia, Wis. 154
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 84
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kennedy Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Pa.
Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
The Mine & Smelter Supply Co., P.O. Box 5270, Terminal Station, Denver 17, Ill.
New Holland Machine Co., 100 Franklin St., New Holland, Penn. 154
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
Taylor-Wharton Iron and Steel Co., High Bridge, N. J. 137
Williams Patent Crusher & Pulverizer Co., 2701 North Broadway, St. Louis 6, Mo. 27

PULVERIZERS (See also Crushers, Mills)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo. 58
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
The Bonnot Co., Mulberry Rd., S.E., Canton, Ohio
Bradley Pulverizer Co., 123 S. Third St., Allentown, Penn. 146
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
Buffalo Hammer Mill Corp., 4727 Washington St., Buffalo 3, N. Y.
Dixie Mch. Mfg. Co., 4200 Goodfellow, St. Louis 20, Mo. 47
Eagle Crusher Co., Inc., 900 Harding Way East, Gallion, Ohio
Gilson Bros. Co., Freedonia, Wis. 159
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
International Pulverizing Corp., New Albany Rd., Moorestown, N. J.
Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kennedy Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Kent Mill Co., 10 Rapelye St., Brooklyn 31, New York, N. Y.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
Lime & Hydrate Plants Co., P.O. Box 1387, York, Penn.
Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
New Holland Mfg. Co., Mountville, Penn. 154
The Mine & Smelter Supply Co., P.O. Box 5270, Terminal Station, Denver 17, Colo.
Nordberg Mfg. Co., 1083 S. Chase Ave., Milwaukee 7, Wis. 22

Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Prater Pulverizer Co., 1825 S. 55th Ave., Chicago 50, Ill.
Raymond Pulverizer Div., Combustion Engineering Co., Inc., 1319 N. Branch St., Chicago, Ill. 61
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
The Stearns-Roger Mfg. Co., 1718-22 California St., Denver 2, Colo.
Stedman's Fdry. & Machine Works, Aurora, Indiana
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass. 2nd Cover
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
Universal Engr. Corp., 625 C Ave. W., Cedar Rapids, Iowa
Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.
Williams Patent Crusher & Pulv., Co., 2701 N. Broadway, St. Louis 6, Mo. 27

PUMPS, Air Lift for Cement, Slurry, Water

Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y. 44
The Deming Co., Salem, Ohio
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
Fuller Co., Fuller Bldg., Catasauqua, Penn. 24, 25
Hills-McCanna Co., 3025 N. Western Ave., Chicago 18, Ill.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Kennedy Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Pennsylvania Pump & Compressor Co., Easton, Penn.
Quimby Pump Co., Div. of H. K. Porter Co., Inc., 49th & Harrison Streets, Pittsburgh, Penn.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Wagner Steam Pump Co., Box 384, Canton, Ohio.

PUMPS, Asphalt

Blackmer Pump Co., 1809 Century Ave., S.W., Grand Rapids 9, Mich.
I. D. Cummer & Son Co., 17th & Euclid Ave., Cleveland 15, Ohio
Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia. 67
Hetherington & Berner, Inc., 701 Kentucky Ave., Indianapolis 7, Ind.
Madsen Iron Wks., 5631 Bickett St., Huntington Park Calif.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Simplicity System Co., Riverside Drive, Chattanooga 6, Tenn.
F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
Wagner Steam Pump Co., Box 384, Canton, Ohio.
Warren Brothers Roads Co., 38 Memorial Drive, Cambridge 42, Mass.

DIRECTORY

PUMPS, Cement (See Cement Pumps)

PUMPS, Centrifugal

Allen Cone & Mch. Corp., 120 Broadway, New York 5, N. Y.
Allen-Sherman-Hoff Co., 221 N. 15th St., Philadelphia, Penn. 78
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
American Well Works, 100 North Broadway, Aurora, Ill.
Barnes Mfg. Co., 651 N. Main St., Mansfield, Ohio
Bryon-Jackson Co., P.O. Box 2017, Terminal Annex, Los Angeles 54, Calif.
Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.
Ralph B. Carter Co., Markley-Carter Dust Collector Div., 196 Atlantic St., Hackensack, N. J.
Carver Pump Co., 1056 Hershey Ave., Muscatine, Ia.
C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y. 44
The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland, Ohio
Construction Machinery Co., Glenwood & Vinton, Waterloo, Iowa
Dayton-Dowd Co., Third & Fort, Quincy, Ill.
DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
The Deming Co., Salem, Ohio
Denver Equipment Co., P.O. Box 5268, Denver, Colo. 146
Economy Pumps, Inc., 1000 Weller Ave., Hamilton, O.
Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
Gardner-Denver Co., Quincy, Ill.
Goulds Pumps, Inc., Seneca Falls, N. Y.
Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
Ingersoll - Rand Co., 11 Broadway, New York 4, N. Y.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Kadco Corp., 36-40 Eleventh St., Long Island City, N. Y., (Subsidiary of Complete Machinery & Equipment Co.)
Kansas City Hay Press Co., 801 Woodweather Rd., Kansas City 6, Mo. 288
Keystone Driller Co., 2001-21 8th Ave., Beaver Falls, Penn.
Kimball-Krogh Pump Co., Div., Food Mch. Corp., W. 26th Ave. & 3rd St., Los Angeles, Calif.
La Bour Co., Inc., 1547 Sterling Ave., Elkhart, Ind.
Lawrence Machine & Pump Corp., 371 Market St., Lawrence, Mass.
Maddox Fdry. & Machine Works, Inc., Archer, Fla.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morris Machine Works, 31 E. Genesee St., Baldwinville, N. Y. 151
Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
Novo Engine Co., 702 Porter St., Lansing, Mich.
Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.
Peerless Pump Div., Food Mch. Corp., 301 W. Ave. at Humboldt, Los Angeles, Calif.

Pennsylvania Pump & Compressor Co., Easton, Penn.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Red Jacket Mfg. Co., 2747 Rockingham Rd., Davenport, Iowa
R. H. Sheppard Co., Philadelphia St., Hanover, Penn.
Sterling Machinery Corp., 411 Southwest Blvd., Kansas City 8, Mo.
Webb Corp., 402 E. Broadway, Webb City, Mo.
A. R. Wilfley & Sons, Inc., P. O. Box 2330, Denver, Colo. 31
Worthington Pump & Machinery Corp., Harrison, N. J.

PUMPS, Concrete

Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Worthington Pump & Mch. Co., 37 Appleton St., Holyoke, Mass.

PUMPS, Deep Well

American-Marsh Pumps, Inc., 205 Capital Ave., Battle Creek, Mich.
American Well Works, 100 North Broadway, Aurora, Ill.
Byron Jackson Co., P.O. Box 2017 Terminal Annex, Los Angeles 54, Calif.
DeLaval Steam Turbine Co., Trenton, N. J.
The Deming Co., Salem, Ohio
Erie Pump & Engine Works, 140 Glenwood Ave., Medina, N. Y.
Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
Goulds Pumps, Inc., 300 Fall St., Seneca Falls, N. Y.
The Hell Co., 3000 W. Montana St., Milwaukee 1, Wis.
Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
Keystone Driller Co., 20th St. & 8th Ave., Beaver Falls, Penn.
Layne & Bowler, Inc., Box 215, Hollywood Sta., Memphis 8, Tenn.
Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
Peerless Pump Div., Food Mch. Corp., 301 W. Ave. at Humboldt, Los Angeles, Calif.
Quimby Pump Co., Div. of H. K. Porter Co., Inc., 49th & Harrison Sts., Pittsburgh, Penn.
Red Jacket Mfg. Co., 2747 Rockingham Rd., Davenport, Iowa
Webb City & Carterville Fdry. & Mach. Wks., Webb City, Mo.
Worthington Pump & Machinery Corp., Harrison, N. J.

PUMPS, Diaphragm

Barnes Mfg. Co., 651 N. Main St., Mansfield, Ohio
Ralph B. Carter Co., Markley-Carter Dust Collector Div., 196 Atlantic Street, Hackensack, N. J.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Colorado Iron Works Co., 1624 17th St., Denver, Colo.
Construction Machinery Co., Glenwood & Vinton, Waterloo, Iowa
The Deming Co., Salem, Ohio
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N.Y. 54
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
The Galigher Co., 48 S. 2nd East St., Salt Lake City, 1, Utah 140

Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 63
Kadco Corp., 36-40 Eleventh St., Long Island City, N. Y., (Subsidiary of Complete Machinery & Equipment Co.)
Morse Bros. Machinery Co., P.O. Box 1708, Denver 1, Colo.
Novo Engine Co., 702 Porter St., Lansing, Mich.
Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.
Quimby Pump Co., Div. of H. K. Porter Co., Inc., 49th & Harrison Sts., Pittsburgh, Penn.
Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
Western Machinery Co., 760 Folsom St., San Francisco, Calif.

PUMPS, Dredging (See Dredge Pumps)

PUMPS, Pulverized Material (See Cement Pumps)

PUMPS, Rubber-Lined

Allen - Sherman - Hoff Co., 1435 Locust St., Philadelphia 2, Penn. 78
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.
Byron Jackson Co., P. O. Box 2017 Terminal Annex, Los Angeles 54, Calif.
The Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y.
Lawrence Machine & Pump Corp., 371 Market St., Lawrence, Mass.
Manhattan Rubber Mfg. Co., Div. of Raybestos-Manhattan, Inc., 61 Willet St., Passaic, N. J. 59
Morris Machine Works, 31 E. Genesee St., Baldwinville, N. Y. 151
Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
A. R. Wilfley & Sons, Inc., P. O. Box 2330, Denver 1, Colo. 31

PUMPS, Sand

The Allen - Sherman - Hoff Co., 1435 Locust St., Philadelphia 2, Pa. 78
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
Byron Jackson Co., P. O. Box 2017, Terminal Annex, Los Angeles 54, Calif.
Construction Mch. Co., Glenwood & Vinton, Waterloo, Ia.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
Ellicott Machine Corp., 1611 Bush St., Baltimore, Md.
Kansas City Hay Press Co., 801 Woodweather Rd., Kansas City 6, Mo. 288
Lawrence Machine & Pump Co., 371 Market St., Lawrence, Mass.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Millville Iron Wks., Sixth & Florence Ave., Millville, N. J.
The Mine & Smelter Supply Co., Box 5270, Terminal Station, Denver 17, Colo.
Sterling Mch. Co., 405-13 Southwest Blvd., Kansas City 8, Mo.
A. R. Wilfley & Sons, Inc., P. O. Box 2330, Denver 1, Colo. 31

PUMPS, Slurry (See Slurry Pumps)

PUMPS, Vacuum

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y. 44
Construction Mch. Co., Glenwood & Vinton, Waterloo, Iowa
Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.
DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
J. P. Devine Mfg. Co., Inc., 909 Shawnee, Mt. Vernon, Ill.
Fuller Co., Fuller Bldg., Catasauqua, Penn. 24, 25
Gardner-Denver Co., Quincy, Ill.
Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
Ingersoll - Rand Co., 11 Broadway, New York 4, N. Y.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
Kennedy - Van Saun Mfg. & Engr. Co., 2 Park Ave. Bldg., New York, N. Y. 15
Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.
Palo Myers, Inc., 81 Reade St., New York 17, N. Y.
Pennsylvania Pump & Compressor Co., Easton, Penn.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
Quincy Compressor Co., 217 Maine St., Quincy, Ill.
W. A. Riddell Corp., Bucyrus, Ohio
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Wagener Steam Pump Co., Box 384, Canton, Ohio.
Worthington Pump & Machinery Corp., Harrison, N. J.

PYROMETERS

Balley Meter Co., 1050 Ivanhoe Rd., Cleveland, Ohio
The Bristol Co., Waterbury 91, Conn.
Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Phila., 44, Penn. 50
Cambridge Instrument Co., Inc., 3010 Grand Central Terminal, New York 17, N. Y.
Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.
Chas. Engelhard, Inc., 90 Passaic Ave., East Newark, N. J.
Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Penn.
The Foxboro Co., Neponset St., Foxboro, Mass.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
J. B. T. Instruments, Inc., 441 Chapel St., New Haven 8, Conn.
Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
Simplexity System Co., Riverside Dr., Chattanooga 6, Tenn.
Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

RACKS, Curing (Concrete Masonry)

Besser Mfg. Co., Alpena, Mich. 170, 183
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194

DIRECTORY

Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga. 169, 191
 Erickson Special Equipment Co., 2631 Ulysses N.E., Minneapolis, Minn. 196
 Fleming Mfg. Co., Inc., 4985 Flyer Ave., St. Louis 9, Mo. 190
 Johnston Iron Works, 1133 Cornelia Ave., Chicago 13, Ill. 44
 E. B. Kelly Co., Farmingdale, N. J. 187
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
 The Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
 Moffat Steel Co., 1621 E. Fourth St., Bethlehem, Penn.
 Multiplex Concrete Machinery Co., Elmore, Ohio. 163
 Stearns Mfg. Co., Inc., Adrian, Mich.

RAILS, Relay

Central Frog & Switch Co., Station O, Box 9, Cincinnati, Ohio
 L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Penn.
 Henry Levis & Co., Commercial Trust Bldg., Philadelphia 2, Penn.
 Midwest Steel Corp., P. O. Box 271, Charleston 21, W. Va.
 Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.

RAILWAY, Industrial Equipment

American Car & Foundry Co., 30 Church St., New York 8, N. Y.
 The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
 Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn. 65
 Buda Co., 15428 Commercial Ave., Harvey, Ill.
 Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
 The Central Frog & Switch Co., Station O, Box 9, Cincinnati, Ohio
 The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 Chicago Pneumatic Tool Co., 6 East 44th St., New York 17, N. Y. 44
 Differential Steel Car Co., N. Main St., Findlay, Ohio
 Easton Car & Constr. Co., Box 270, Easton, Penn.
 L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Penn.
 Frog, Switch & Mfg. Co., Carlisle, Penn. 150
 Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
 Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Pressed Steel Car Co., Inc., Industrial Div., 2500 Koppers Bldg., Pittsburgh, Penn.
 The Woodford Engr. Co., 77 W. Washington St., Chicago 2, Ill.

RAILWAYS, Electric

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland, Ohio
 Differential Steel Car Co., N. Main St., Findlay, Ohio

READY MIXED TRUCKS (See Concrete Mixers, Truck)

RECORDERS, Concrete Batching

Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.

Scientific Concrete Service Corp., 1252 Waverly Place, Elizabeth 3, N. J.
 The Woodford Engr. Co., 77 W. Washington St., Chicago 2, Ill.

RECORDERS, Draft, Pressure, Temperature

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio
 The Bristol Co., Waterbury 91, Conn.
 Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia 44, Penn. 50
 Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.
 The Foxboro Co., Neponset St., Foxboro, Mass.
 The Hays Corp., Michigan City, Ind.
 Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
 Manning Maxwell & Moore, Inc., 11 Elias St., Bridgeport 2, Conn.
 Taylor Instrument Co., 95 Ames St., Rochester, N. Y.
 Wheelco Instrument Co., 847 W. Harrison St., Chicago 7, Ill.

RECTIFIERS (Electric)

(See Electrical Equipment and Supplies)

RECUPERATORS, Waste Heat

Manitowoc Engineering Wks., Manitowoc, Wis. 42
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7

REFRACTORIES

(See also Blocks, Brick, Fire Brick, Insulation)

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
 Bofield Refractories Co., 777 S. Swanson St., Philadelphia 47, Pa.
 Chicago Fire Brick Co., 1467 N. Elston Ave., Chicago, Ill.
 The Denver Fire Clay Co., P. O. Box 5510, Denver 17, Colo.
 General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia, Penn.
 A. P. Green Fire Brick Co., Mexico, Mo.
 Harbinson-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.
 Johns-Manville, 22 E. 40th St., New York 16, N. Y.
 Laclede-Christy Clay Products Co., Ambassador Bldg., St. Louis 1, Mo.
 E. J. Lavino & Co., 1528 Walnut St., Philadelphia 2, Penn.
 Mexico Refractories Co., Better Refractories Bldg., Mexico, Mo.
 Permanente Cement Co., Kaiser Bldg., Oakland, Calif.
 Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.
 Selas Corporation of America, Erie Ave. and D St., Philadelphia 34, Penn.
 Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

REGULATORS, Feed Water

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio
 Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Phila., 44, Penn. 50

Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.
 Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.

REGULATORS, Pressure

American Brake Shoe Co., Kellogg Div., 97 Humboldt St., Rochester 9, N. Y. 45
 Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio
 Balcrank, Inc., Disney St., Cincinnati 9, Ohio
 The Bristol Co., Waterbury 91, Conn.
 Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Phila., 44, Penn. 50
 Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.
 Economy Pumps, Inc., 1000 Weller Ave., Hamilton, O.
 The Foxboro Instrument Co., Neponset Ave., Foxboro, Mass.
 The Hays Corp., 642 8th St., Michigan City, Ind.
 O. C. Keckley Co., 400 W. Madison St., Chicago 6, Ill.
 Manning, Maxwell & Moore Inc., 11 Elias St., Bridgeport 2, Conn.
 The Alexander Milburn Co., 1425 W. Baltimore St., Baltimore 23, Md.
 Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.
 Taylor Instrument Companies, 95 Ames St., Rochester, N. Y.
 Wheelco Instrument Co., 847 Harrison St., Chicago 7, Ill.

REGULATORS, Speed

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
 Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio
 The Bristol Co., Waterbury 91, Conn.
 Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia 44, Penn. 50
 The Hays Corp., 642 8th St., Michigan City, Ind.
 Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn. 1
 Manning, Maxwell & Moore, Inc., 11 Elias St., Bridgeport 2, Conn.
 Reeves Pulley Co., Columbus, Ind.
 Stephens Adamson Mfg. Co., 7, Ridgeway Ave., Aurora, Ill.
 Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

REGULATORS, Temperature

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio
 The Bristol Co., Waterbury 91, Conn.
 Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Phila., 44, Penn. 50
 Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.
 Economy Pumps Inc., 1000 Weller Ave., Hamilton, O.
 The Foxboro Instrument Co., Neponset Ave., Foxboro, Mass.
 The Hays Corp., 642 8th St., Michigan City, Ind.
 O. C. Keckley Co., 400 W. Madison St., Chicago 6, Ill.
 Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
 Manning, Maxwell & Moore Inc., 11 Elias St., Bridgeport 2, Conn.
 Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.

Taylor Instrument Companies, 95 Ames St., Rochester, N. Y.
 Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

REGULATORS, Voltage

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Electric Machinery Mfg. Co., 1331 N.E. Tyler St., Minneapolis 13, Minn.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.
 Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

RESPIRATORS

Boyer - Campbell Co., 6540 Antoine St., Detroit 2, Mich.
 E. D. Bullard Co., 275 8th St., San Francisco 3, Calif.
 Davis Emergency Equip. Co., Inc., 45 Halleck St., Newark 4, N. J.
 The DeVilbiss Co., 300 Phillips Ave., Toledo, Ohio.
 Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Penn.
 Pulmosan Safety Equipment Corp., 176 Johnston St., Brooklyn 1, N. Y.
 Willson Products, Inc., 2nd & Washington Sts., Reading, Penn.

REVOLUTION COUNTERS (See Tachometers)

REWASHERS, Screw; for Sand, Gravel, etc.

Allen Cone & Mch. Corp., 120 Broadway, New York 5, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Andersen Engr. Co., 237 Bent St., Cambridge 41, Mass.
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Colorado Iron Wks., Co., 1624 17th St., Denver 2, Colo.
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Eagle Iron Works, 129 Holcomb, Des Moines 4, Ia. 301
 The J. B. Ehrman & Sons Mfg. Co., Enterprise, Kan.
 Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia. 67
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippman Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 Pioneer Engr. Wks., 1515 Central Ave., Minneapolis 13, Minn.
 Smith Engr. Wks., 532 E. Capitol Drive, Milwaukee 12, Wis. 11
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Straub Mfg. Co., 507 Chestnut, Oakland, Calif. 28
 Webster Mfg., Inc., Tiffin, Ohio
 Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

RHEOSTATS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Atlas Powder Co., Wilmington 99, Del.
 Electric Controller & Mfg. Co., 2700 E. 79th St., Cleveland 4, Ohio

DIRECTORY

General Electric Co., 1 River Rd., Schenectady 5, N. Y.
Goodman Mfg. Co., 4843 S. Halsted, Chicago, Ill.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

ROCK WOOL CUPOLAS & EQUIPMENT

James Campbell Smith Co., Cleveland, Ohio
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Whiting Corp., 157th St., & Lathrop Ave., Harvey, Ill.

RODS, for Grinding Mills

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
Groch Engr. Co., 625 W. 9th St., Los Angeles 15, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
The Mine & Smelter Supply Co., Box 5270, Terminal Annex Denver 17, Colo.
H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7

RODS, Welding, Hard-facing (See Welding Rods, Hard Surfacing Metals)

RODS, Welding (See Welding Rods and Electrodes)

ROLLER BEARINGS (See also Bearings)

Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Hyatt Bearings Div., General Motors Corp., Harrison, N. J.
Link-Belt Co., 519 N. Holmes Ave., Indianapolis 6, Ind.
Roller Bearing Co. of America, P. O. Box 480, Trenton 3, N. J.
Rollway Bearing Co., 541 Seymour St., Syracuse, N. Y. 57
Sanford-Day Iron Works, Inc., Dale Ave., Knoxville, Tenn.
S K F Industries, Inc., Front St. & Erie Ave., Philadelphia 34, Penn.
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

ROLLS, Crushing (See Crushers)

ROOFING AND SIDING Industrial

The American Rolling Mill Co., 703 Curtis Street, Middletown, Ohio
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.
Johns-Manville, 22 E. 40th St., New York 16, N. Y.
The R. C. Mahon Co., 231 S. La Salle St., Chicago 4, Ill.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio

The Ruberoid Co., 500 Fifth Ave., New York, N. Y.
Joseph T. Ryerson & Sons, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
Tennessee Coal, Iron & Railroad Co., Brown & Marx Bldg., Birmingham 2, Ala.
Truscon Steel Co., Albert St., Youngstown, Ohio

ROOFING TILE MACHINES Concrete

E. P. Barber Co., P. O. Box 3294, Los Angeles 53, Calif.
W. E. Dunn Mfg. Co., 23 W. 24th St., Holland, Mich.

ROPE, Manila, Sisal, Jute, etc.

The Edwin H. Fittler Co., 5625 Tacony St., Philadelphia 24, Penn.
Wall Rope Works, Inc., 48 South Street, New York 5, N. Y.

ROPE, Wire (See Wire Rope)

RUBBER LININGS (See also Chute Linings, Rubber)

American Rubber Mfg. Co., 1145 Park Ave., Oakland 8, Calif.
Boston Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.
The Cincinnati Rubber Mfg. Co., Franklin Ave., Norwood Station, Cincinnati, Ohio
Continental Rubber Works, 1902 Liberty St., Erie, Penn.
The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
The Gates Rubber Co., 999 S. Broadway, Denver 17, Col.
Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Penn.
The B. F. Goodrich Co., Akron, Ohio 3
Hewitt Rubber of Buffalo, Div. Hewitt-Robins Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
Manhattan Rubber Mfg., Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J. 59
Manson Glover, 213 Pleasant, Stoughton, Mass.
Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.
Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 4, Pa. 12
Republic Rubber Division, Lee Rubber & Tire Corp., Youngstown 1, Ohio
U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y.

SAFETY EQUIPMENT, Goggles, Shoes, Etc.

Boyer-Campbell Co., 6540 Antoine St., Detroit 2, Mich.
E. D. Bullard Co., 275 8th St., San Francisco 3, Calif.
Carlyle Rubber Co., Inc., 62 Park Pl., New York 7, N. Y.
Davis Emergency Equip. Co., Inc., 45 Halleck St., Newark 4, N. J.
Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Penn.
B. F. Goodrich Co., 448 S. Main St., Akron, Ohio 3
The Industrial Products Co., 2705 N. Fourth St., Philadelphia 33, Penn.
Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Penn.
Pulmosan Safety Equipment Co., 176 Johnson St., Brooklyn 1, N. Y.
U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y.
Willson Products, Inc., 2nd & Washington Sts., Reading, Penn.

SAMPLING EQUIPMENT

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
The Buda Co., 15401 Commercial Ave., Harvey, Ill.
Colorado Iron Wks. Co., 1624 17th St., Denver 2, Colo.
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo. 146
Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Penn.
Fuller Co., Fuller Bldg., Castasauqua, Penn. 25
The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Tower, Denver 17, Colo.
Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass. 2nd Cover
Traylor Engr. & Mfg. Co., Tenth & Harrison Sts., Allentown, Penn. 7

SAND DRAGS

Allen Cone & Mch. Corp., 120 Broadway, New York 5, N. Y.
American Manganese Steel, Div., 377 E. 14th St., Chicago Heights, Ill. 45
Anderson Engr. Co., 237 Bent St., Cambridge 41, Mass.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco, 24, Calif.
Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Eagle Iron Wks., 129 Holcomb Ave., Des Moines, Iowa 301
Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Fred T. Kern Co., P. O. Box 2057, Milwaukee 1, Wis.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
Maddox Foundry & Machine Works, Archer, Fla.
Meckum Engr. Wks., 53 W. Jackson Blvd., Chicago, 4, Ill.
Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Smith Engr. Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 11
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa

SAND & GRAVEL PLANTS, Engineers & Contractors

Allen Cone & Mch. Corp., 120 Broadway, New York 5, N. Y.
Anderson Engr. Co., 19-21 Charles St., Cambridge 41, Mass.
Austin-Western Co., Aurora, Ill.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.

Butler Bin Co., Box 407, Waukesha, Wis.
J. D. Christlan Engineers, 480 Potrero Ave., San Francisco, Calif.
Colorado Iron Works Co., 1624 17th St., Denver 2, Colo.

Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
The Dorr Co., 570 Lexington Ave., New York 22, N.Y. 54
Dravo Corp., Neville Island, Pittsburgh 25, Penn.

Farrrel-Birmingham Co., Inc., Ansonia, Conn.
The Galigher Co., 48 S. 2nd East St., Salt Lake City, 1, Utah 140
Gründler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia. 67

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio. 63
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Fred T. Kern Co., P. O. Box 2057, Milwaukee 1, Wis.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.

Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Engr. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
Maddox Foundry & Machine Works, Archer, Fla.

Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
New Holland Mfg. Co., Mountville, Penn. 154
Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22

Pioneer Engr. Wks., Inc., 1515 Central Ave., Minneapolis 13, Minn.
Robins Conveyors Inc., (Div. Hewitt-Robins), 270 Passaic Ave., Passaic, N. J. 56
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.

Smith Engr. Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 11
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stearns-Roger Mfg. Co., 1718-22 California St., Denver 2, Colo.

Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
W. Toepfer & Sons, Inc., 1450 E. Park Pl., Milwaukee 11, Wis.

Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

SAND-LIME BRICK MACHINERY

Besser Mfg. Co., Alpena, Mich. 170, 183
Hardinge Co., Inc., 240 Arch St., York, Penn. 147

DIRECTORY

International Engr., Inc., Bo-
lander Ave., Dayton 1, Ohio
Jackson & Church Co., 321
N. Hamilton St., Saginaw,
Mich.
The Mine & Smelter Supply
Co., P. O. Box 5270, Termi-
nal Annex, Denver 17, Colo.
The Multiplex Concrete Mch.
Co., Elmore, Ohio 163
W. A. Riddell Corp., Bucy-
rus, Ohio

SAND RECOVERY MACHIN- ERY, Cones, Classifiers, Dewaterers, etc.

Allen Cone & Mach. Co., 120
Broadway, New York 5,
N. Y.
Allis-Chalmers Mfg. Co., Mil-
waukee 1, Wis. 53
Anderson Engr. Co., 237 Bent
St., Cambridge 41, Mass.
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Bodinson Mfg. Co., Inc., 2401
Bayshore Blvd., San Fran-
cisco 24, Calif.
Chain Belt Co., 1649 W. Bruce
St., Milwaukee 4, Wis.
Colorado Iron Wks., 1624 17th
St., Denver 2, Colo.
The Conveyor Co., Inc., 3260
E. Slauson Ave., Los An-
geles 11, Calif.
Coyle & Roth Co., Inc., 3024
S. E. 4th St., Minneapolis,
Minn.
The Deister Concentrator Co.,
915 Glasgow Ave., Fort
Wayne 1, Ind.
Deister Machine Co., 1933 E.
Wayne St., Ft. Wayne 4,
Ind. 149
Denver Equipment Co., P.O.
Box 5268, Denver 17, Col.
The Dorr Co., 570 Lexington
Ave., New York 22, N.Y.
Eagle Iron Works, 129 Hol-
comb, Des Moines 4, Ia. 301
Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
Iowa Mfg. Co., 916 16th St.
N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kennedy-Van Saun Mfg. &
Engr. Corp., 2 Park Ave.,
New York 16, N. Y. 14
Fred T. Kern Co., P. O. Box
2057, Milwaukee 1, Wis.
Link-Belt Co., 330 W. Per-
shing Rd., Chicago 9, Ill. 1
Lippman Engr Wks., 4603
W. Mitchell St., Milwau-
kee 14, Wis.
McLanahan & Stone Corp.,
200 Wall St., Hollidays-
burg, Penn. 139
Mine & Smelter Supply Co.,
1422 17th St., Denver, Colo.
Morrow Mfg. Co., 722 E. 10th
St., Wellston, Ohio
Morse Bros. Mch. Co., P.O.
Box 1708, Denver 1, Colo.
Pioneer Engr. Works, Inc.,
1515 Central Ave., Minne-
apolis 13, Minn.
Productive Equipment Corp.,
2926 W. Lake St., Chicago
12, Ill.
Ritter Products Corp., Ritter
Park, Rochester 3, N. Y.
Simplicity Engineering Co.,
Oak St., Durand, Mich. 131
Smith Engr. Wks., 532 E.
Capitol Dr., Milwaukee 12,
Wis. 10
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill. 11
Straub Mfg. Co., 507 Chest-
nut St., Oakland 7, Calif. 28
Universal Road Machinery
Co., 27 Emerick St., Kings-
ton, N. Y. 287
Western Machinery Co., 760
Folsom St., San Francisco,
Calif.

SANDERS (Cast Stone)

Independent Pneumatic Tool
Co., 600 W. Jackson Blvd.,
Chicago 6, Ill.

SCALES, Batching

Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh 22,
Penn. 160
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Francisco
24, Calif.
Bonded Scale Co., 41 Bell-
view, Columbus 7, Ohio. 189
Buffalo Scale Co., Inc., 1200
Niagara St., Buffalo 13, N. Y.
Butler Bin Co., Waukesha,
Wis.
Construction Machinery Co.,
Glenwood & Vinton, Wat-
terloo, Iowa
The Conveyor Co., Inc., 3260
Slauson Ave., Los Angeles
11, Calif.
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Garlinghouse Bros., 2416 E.
16th St., Los Angeles 21,
Calif.
Howe Scale Co., Rutland, Vt.
C. S. Johnson Co., P.O. Box
71, Champaign, Ill.
Kron Co., 1720 Fairfield Ave.,
Bridgeport 5, Conn.
Merrick Scale Mfg. Co., 180-
186 Autumn St., Passaic,
N. J. 155
Noble Co., 1860 7th St., Oak-
land 7, Calif.
Richardson Scale Co., Clif-
ton, N. J.
Scientific Concrete Service
Corp., 724 Salem Ave.,
Elizabeth 3, N. J.
Standard Steel Corp., 5001 S.
Boyle Ave., Los Angeles
11, Calif.
Toledo Scale Co., Telegraph
Rd., Toledo 12, Ohio
The Yale & Towne Mfg. Co.,
4530 Tacony St., Philadel-
phia 24, Penn.

SCALES, Conveyor (See Conveyors, Weigh- ing)

SCALES, Hopper

The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh 22,
Penn. 160
Bodinson Mfg. Co., 2401 Bay-
shore Blvd., San Francisco
24, Calif.
Bonded Scale Co., 41 Bell-
view, Columbus 7, Ohio. 189
Buffalo Scale Co., Inc., 1200
Niagara St., Buffalo 13,
N. Y.
Butler Bin Co., Waukesha,
Wis.
Erie Steel Const. Co., 19th
& Geist Rd., Erie, Penn. 192
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Hetzl Steel Form & Iron
Co., 1750 Thomas Rd.,
Warren, Ohio.
Howe Scale Co., Rutland, Vt.
C. S. Johnson Co., P. O. Box
71, Champaign, Ill.
Kron Co., 1720 Fairfield Ave.,
Bridgeport 5, Conn.
Lippmann Eng. Wks., 4603
W. Mitchell St., Milwau-
kee 14, Wis.
Noble Co., 1860 7th St., Oak-
land 7, Calif.
Richardson Scale Co., Clif-
ton, N. J.
Scientific Concrete Service
Corp., 724 Salem Ave.,
Elizabeth 3, N. J.
Standard Steel Corp., 5001 S.
Boyle Ave., Los Angeles
11, Calif.
Stephen-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Toledo Scale Co., Telegraph
Rd., Toledo 12, Ohio
Winslow Government Stand-
ard Scale Works, 25th &
Hawthorne, Terre Haute,
Ind.
The Yale & Towne Mfg. Co.,
4530 Tacony St., Philadel-
phia 24, Penn.

SCALES, Laboratory

Buffalo Scale Co., Inc., 1200
Niagara St., Buffalo, N. Y.
Burrell Technical Supply Co.,
1936-1942 Fifth Ave., Pitts-
burgh, Penn.
Fairbanks Morse, & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Fisher Scientific Co., 717
Forbes St., Pittsburgh 19,
Penn.
Howe Scale Co., Rutland, Vt.
Kron Co., 1720 Fairfield Ave.,
Bridgeport 5, Conn.
Palo Myers, Inc., 81 Reade
St., New York 17, N. Y.
Scientific Concrete Service
Corp., 724 Salem Ave.,
Elizabeth 3, N. J.
Toledo Scale Co., Telegraph
Rd., Toledo 12, Ohio

SCALES, Larry (See also Weigh Larries)

Atlas Car & Mfg. Co., 1100
Ivanhoe Rd., Cleveland 10,
Ohio
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Beaumont Birch Co., 1512
Race St., Philadelphia,
Penn.
Bonded Scale Co., 41 Bell-
view, Columbus 7, Ohio. 189
Buffalo Scale Co., Inc., 1200
Niagara St., Buffalo, N. Y.
Butler Bin Co., Waukesha,
Wis.
Chain Belt Co., 1649 W. Bruce
St., Milwaukee 4, Wis.
Hetzl Steel Form & Iron
Co., 1750 Thomas Rd.,
Warren, Ohio
Howe Scale Co., Rutland, Vt.
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
C. S. Johnson Co., P.O. Box
71, Champaign, Ill.
Richardson Scale Co., Clif-
ton, N. J.
Stearns Mfg. Co., Inc.,
Adrian, Mich.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Toledo Scale Co., Telegraph
Rd., Toledo 12, Ohio
The Yale & Towne Mfg. Co.,
4530 Tacony St., Philadel-
phia 24, Penn.

SCALES, Proportioning

Bonded Scale Co., 41 Bell-
view, Columbus 7, Ohio. 189
Builders - Providence, Inc.,
9 Coddling St., Providence
1, R. I.
Buffalo Scale Co., Inc., 1200
Niagara St., Buffalo 13,
N. Y.
Butler Bin Co., Box 407,
Waukesha, Wis.
Erie Steel Const. Co., 19th
& Geist Rd., Erie, Penn. 192
Fairbanks Morse, & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Hetzl Steel Form & Iron
Co., 1750 Thomas Rd.,
Warren, Ohio.
Howe Scale Co., Rutland, Vt.
C. S. Johnson Co., P. O. Box
71, Champaign, Ill.
Merrick Scale Mfg. Co., 180-
186 Autumn St., Passaic,
N. J. 155
Richardson Scale Co., Clif-
ton, N. J.
Schaffer Poidometer Co., 2828
Smallman St., Pittsburgh,
Penn.
Scientific Concrete Service
Corp., 724 Salem Ave.,
Elizabeth 3, N. J.
Syntron Co., 450 Lexington
Ave., Homer City, Penn.
Toledo Scale Co., Telegraph
Rd., Toledo 12, Ohio
The Yale & Towne Mfg. Co.,
4530 Tacony St., Philadel-
phia 24, Penn.

SCALES, Truck, Railway

Bonded Scale Co., 41 Bell-
view Ave., Columbus 7, O. 189
view Ave., Columbus 7, O.
Buffalo Scale Co., Inc., 1200
Niagara St., Buffalo 13,
N. Y.
Fairbanks Morse, & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Howe Scale Co., Rutland, Vt.
Kron Co., 1720 Fairfield Ave.,
Bridgeport 5, Conn.
Merrick Scale Mfg. Co., 180-
186 Autumn St., Passaic,
N. J. 155
Webb Corp., 402 E. Broad-
way, Webb City, Mo.
Winslow Government Stand-
ard Scale Works, 25th &
Hawthorne, Terre Haute,
Ind.
The Yale & Towne Mfg. Co.,
4530 Tacony St., Philadel-
phia 24, Penn.

SCRAPERS, Power Drag (See also Cable Excava- tors)

J. D. Adams, Oliver & Bel-
mont Aves., Indianapolis,
Ind.
Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh
22, Penn. 160
Bucyrus-Erie Co., South Mil-
waukee, Wis. 4th Cover
Downs Crane & Hoist Co.,
540 W. Vernon Ave., Los
Angeles 37, Calif.
The Eimco Corp., P.O. Box
300, Salt Lake City 8, Utah
C. S. Johnson Co., P.O. Box
71, Champaign, Ill.
Link-Belt Speeder Corp., 301
W. Pershing Rd., Chicago
9, Ill. 1
Kent Machine Co., Cuyahoga
Falls, Ohio 187
Novo Engine Co., 702 Porter
St., Lansing, Mich.
Rogers Iron Wks. Co., 11th
& Pearl, Joplin, Mo.
Sauerman Bros., Inc., 522 S.
Clinton St., Chicago 7, Ill. 152
Southwest Welding & Mfg.
Co., 3201 W. Mission Rd.,
Alhambra, Calif.
Street Brothers Machine Co.,
415 Ochs Bldg., Chattanooga
2, Tenn.
Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.

SCRAPERS, Tractor

Allis-Chalmers Tractor Div.,
1126 S. 70th St., Milwau-
kee, Wis. 13
The Baker Mfg. Co., 10th &
Stanford Ave., Springfield,
Ill.
Bucyrus-Erie Co., P. O. Box
56, South Milwaukee, Wis.
Caterpillar Tractor Co.,
Peoria 2, Ill. 41
The Cleveland Tractor Co.,
19300 Euclid Ave., Cleve-
land 17, Ohio
Gar Wood Industries, Inc.,
7924 Riopelle St., Detroit
11, Mich.
The Heli Co., 3000 W. Mon-
tana St., Milwaukee 1, Wis.
Hi-Way Service Corp., 3857
W. Wisconsin Ave., Mil-
waukee 8, Wis.
LaPlant-Choate Mfg. Co.,
Inc., 2920 1st Ave., N.E.,
Cedar Rapids, Iowa. 46
R. G. LeTourneau, Inc., 2301
N. Adams, Peoria 3, Ill.
Sauerman Bros., Inc., 530 S.
Clinton St., Chicago, Ill. 152
Southwest Welding & Mfg.
Co., 3201 W. Mission Rd.,
Alhambra, Calif.
Sullivan Div., Joy Mfg. Co.,
Oliver Bldg., Pittsburgh
22, Penn.

SCREEN CLOTH, Woven- Wire (See also Wire Cloth)

Acme Wire & Irons Works,
3527 E. Canfield Ave., De-
troit 7, Mich.

DIRECTORY

Audubon Wire Cloth Corp., (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn.
Bixby-Zimmer Eng. Co., 961 Abingdon St., Galesburg, Ill.
Buffalo Wire Works Co., 487 Terrace, Buffalo, N. Y.
The California Wire Cloth Corp., 1001 122nd Ave., Oakland, Calif.
Cleveland Wire Cloth & Mfg. Co., 3573 E. 78th St., Cleveland 5, Ohio 287
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Cyclone Fence Div., American Steel & Wire Co., Waukegan, Ill.
Farrell-Birmingham Co., Inc., Ansonia, Conn.
Harris Steel Products Co., 420 Lexington Ave., New York 17, N. Y.
Hewitt Rubber of Buffalo, Div. Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
Iowa Mfg. Co., 916-16th St. N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Ludlow-Saylor Wire Co., 600 S. Newstead Ave., St. Louis, Mo. 302
Michigan Wire Cloth Co., 2108 Howard St., Detroit, Mich.
Newark Wire Cloth Co., 351 Verona Ave., Newark 4, N. J.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
John A. Roebbing's Sons Co., 640 S. Broad, Trenton 2, N. J. 17
Screen Equipment Co., Inc., 9 Lafayette Ave., Buffalo 13, N. Y. 141
Simplicity Engineering Co., Oak St., Durand, Mich. 131
Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
Twin City Iron & Wire Co., 21-35 Water St., St. Paul 1, Minn.
The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio 287
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y. 20

SCREEN PARTS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview, Columbus 7, Ohio. 189
Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
Cleveland Wire Cloth & Mfg. Co., 3573 E. 78th St., Cleveland, Ohio 287
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Delster Concentrator Co., 915 Glasgow Ave., Fort Wayne, Ind.
Delster Machine Co., 1933 E. Wayne St., Ft. Wayne 4, Ind. 149
Farrell-Birmingham Co., Ansonia, Conn.
The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63

Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
W. A. Riddell Corp., Bucyrus, Ohio
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Avenue, Passaic, N. J. 56
Screen Equipment Co., Inc., 9 Lafayette Ave., Buffalo 13, N. Y. 141
Simplicity Engr. Co., 213 S. Oak, Durand, Mich. 131
Smith Engr. Wks., 532 E. Capitol Dr., Milwaukee 12, Wis. 11
Straub Mfg. Co., Inc., 507 Chestnut St., Oakland 7, Calif. 28
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Traylor Eng. & Mfg. Co., Allentown, Penn. 7
W. S. Tyler Co., 3615 Superior Ave., Cleveland 14, Ohio 287
Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
Webster Mfg. Inc., Tiffin, Ohio
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

SCREEN PLATES, Perforated Metal

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
C. O. Bartlett & Snow Co., 6194 Harvard Ave., Cleveland, Ohio
Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
The C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver 1, Colo.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Cross Eng. Co., Carbondale, Penn.
Eagle Iron Works, 129 Holcomb, Des Moines 4, Ia. 301
Electric Steel Fdy., 2141 N.W., 25th Ave., Portland 10, Ore.
Farrell-Birmingham Co., Ansonia, Conn.
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
The Harrington & King Perforating Co., 5650 Fillmore St., Chicago 44, Ill. 138
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Iowa Mfg. Co., 916-16th St. N.E., Cedar Rapids, Iowa. 67
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
Nortmann-Duffke Co., 2740 S. 32nd St., Milwaukee, Wis.
Pioneer Engr. Works, 1515 Central Ave., Minneapolis 13, Minn.
Prater Pulverizer Co., 1829 S. 55th Ave., Chicago 50, Ill.

Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
Screen Equipment Co., Inc., 9 Lafayette Ave., Buffalo 13, N. Y. 141
Simplicity Engr. Co., Durand, Mich. 131
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
Traylor Eng. & Mfg. Co., Allentown, Penn. 7
W. Toepfer & Sons, Inc., 1450 E. Park Pl., Milwaukee 11, Wis.
Universal Road Machinery, 27 Emerick St., Kingston, N. Y. 287

SCREENING Plants, Portable (See Crushing and Screening Plants)

SCREENS, Gravity

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview, Columbus 7, Ohio. 189
Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
Cleveland Wire Cloth & Mfg. Co., 3573 E. 78th St., Cleveland 5, Ohio 287
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Diamond Iron Works, 1800 N. 2nd St., Minneapolis, Minn.
The J. B. Ehsram & Sons Mfg. Co., Enterprise, Kan. 158
George Halss Mfg. Co., 391 Canal Place, Bronx, New York 51, N. Y.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Hewitt Rubber of Buffalo Div., Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia. 67
Kent Mill Co., 10 Rapelye St., Brooklyn 31, New York, N. Y.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Eng. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
The Ludlow-Saylor Wire Co., Newstead Ave. & Wabash R.R., St. Louis 10, Mo. 302
Maddox Fdry. & Machine Wks., Archer, Florida
Newark Wire Cloth Co., 354 Verona Ave., Newark 4, N. J.
W. A. Riddell Corp., Bucyrus, Ohio
John A. Roebbing's Sons Co., 640 S. Broad, Trenton 2, N. J. 17
Separations Eng. Corp., 110 E. 42nd St., New York 17, N. Y.
Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis. 11
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
The W. S. Tyler Co., 3615 Superior Ave., Cleveland 14, Ohio 287
Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53

SCREENS, Grizzly

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Alloys Steel & Metals Co., 1862 E. 55th St., Los Angeles 11, Calif.
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
Audubon Wire Cloth Corp. (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn.
Austin-Western Co., Aurora, Ill.
C. O. Bartlett & Snow Co., Inc., 6200 Harvard Ave., Cleveland 5, Ohio
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview, Columbus 7, Ohio. 189
Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
Cleveland Wire Cloth & Mfg. Co., 3573 E. 78th St., Cleveland, Ohio 287
Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
Farrell-Birmingham Co., Ansonia, Conn.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Hewitt Rubber of Buffalo Div., Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia. 67
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Korb-Pettit Wire Fabrics & Iron Works, N. Mascher, above Jefferson St., Philadelphia, Penn.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Eng. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
Maddox Foundry & Machine Works, Archer, Fla.
Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
Newark Wire Cloth Co., 354 Verona Ave., Newark 4, N. J.
Nordberg Mfg. Co., 2033 S. Chase Ave., Milwaukee 7, Wis. 22
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N.J. 56
John A. Roebbing's Sons Co., 640 S. Broad St., Trenton 2, N. J. 17
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Simplicity Engr. Co., Oak Street, Durand, Mich. 131
Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis. 11
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Syntron Co., 450 Lexington Ave., Homer City, Penn. 150
Traylor Eng. & Mfg. Co., Allentown, Penn. 7
The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio 287
Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
Webster Mfg., Inc., Tiffin, Ohio
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

DIRECTORY

SCREENS, Laboratory

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
 Buffalo Wire Works Co., Inc., 487 Terrace, Buffalo, N. Y.
 Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
 The Delster Concentrator Co., 915 Glasgow Ave., Ft. Wayne 1, Ind.
 The Denver Equipment Co., P. O. Box 5268, Denver 17, Colo.146
 The Gilson Screen Co., P.O. Box 186, Mercer, Penn.154
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn.156
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.1
 Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 The Multi-Metal Wire Cloth Co., 1350 Garrison Ave., New York 59, N. Y.
 Newark Wire Cloth Co., 354 Verona Ave., Newark 4, N. J.
 Palo Myers, Inc., 81 Reade St., New York 17, N. Y.
 John A. Roebing's Sons Co., 640 S. Broad St., Trenton 2, N. J.17
 Simplicity Engr. Co., Oak St., Durand Mich.131
 Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis.11
 Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass.2nd Cover
 The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio287
 Universal Vibrating Screen Co., Deane Blvd. & St. Paul R.R., Racine, Wis.159
 Webster Mfg. Co., Tiffin 16, Ohio.

SCREENS, Revolving

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
 Audubon Wire Cloth Corp., (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn.
 Austin-Western Co., Aurora, Ill.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
 Denver Equipment Co., P.O. Box 5268, Denver 17, Colo.146
 Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
 Eagle Crusher Co., Inc., Gallon, Ohio
 Eagle Iron Works, 129 Holcomb Ave., Des Moines, Iowa301
 The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.158
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.148
 Gifford-Wood Co., Hudson, N. Y.
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.64
 George Haiss Mfg. Co., Park Ave., & 143rd St., New York 51, N. Y.
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn.156
 Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia.67
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio63

Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
 Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.1
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y.15
 Kent Mill Co., 10 Rapelye St., Brooklyn 31, New York, N. Y.
 Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 McCarter Iron Wks., Inc., Mill & Washington St., Norristown, Penn.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.139
 Maddox Fdy. & Mach. Wks., Archer, Fla.
 Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Millville Iron Works, Inc., Sixth St. & Florence Ave., Millville, N. J.
 Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
 Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
 Newark Wire Cloth Co., 354 Verona Ave., Newark 4, N. J.
 New Holland Mfg. Co., Mountville, Penn.154
 Nortmann-Duffke Co., 2740 S. 32nd St., Milwaukee, Wis.
 Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 John A. Roebing's Sons Co., 640 S. Broad, Trenton 2, N. J.17
 Smith Engr. Wks., 532 E. Capitol Dr., Milwaukee 12, Wis.11
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
 Stearns Mfg. Co., Inc., Adrian, Mich.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif.28
 W. Toepfer & Sons, Inc., 1450 E. Park Pl., Milwaukee 11, Wis.
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.7
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y.287
 Webb Corp., 402 E. Broadway, Webb City, Mo.
 Webster Mfg., Inc., Tiffin, Ohio
 Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

SCREENS, Scrubbers

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
 Denver Equipment Co., P.O. Box 5268, Denver 17, Colo.146
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Eagle Iron Works, 129 Holcomb, Des Moines 4, Iowa301

The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.158
 Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.148
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.64
 Hardinge Co. Inc., 240 Arch St., York, Penn.147
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn.156
 Hewitt Rubber of Buffalo, Div., of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y.56
 Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Iowa
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y.15
 Korb-Pettit Wire Fabrics & Iron Works, Inc., N. Mascher above Jefferson St., Philadelphia, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.1
 Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.139
 Maddox Foundry & Machine Works, Archer, Fla.
 Morrow Mfg. Co., 722 E. Tenth St., Wellston, Ohio
 Newark Wire Cloth Co., 354 Verona Ave., Newark 4, N. J.
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis.22
 Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 John A. Roebing's Sons Co., 640 S. Broad, Trenton 2, N. J.17
 Simplicity Engineering Co., Oak St., Durand, Mich.131
 F. L. Smith & Co., 11 W. 42nd St., New York City 18, N. Y.68, 71
 Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis.11
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.7
 The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio287
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y.287
 Wisconsin Foundry & Mach. Co., 623 S. Main St., Madison 1, Wis.

SCREENS, Vibrating and Shaker

Allen Cone & Machinery Corp., 120 Broadway, New York 5, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.49, 53
 Allis-Chalmers Mfg. Co., Tractor Div., Main Office, Milwaukee 1, Wis.13
 Austin-Western Co., Aurora, Ill.
 Barber-Greene Co., 631 W. Park Ave., Aurora, Ill.16
 Bonded Scale Co., 41 Bellview Ave., Columbus 7, O.189
 Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
 Chicago Perforating Co., 2445 W. 24th Pl., Chicago, Ill. 288
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
 The Delster Concentrator Co., 915 Glasgow Ave., Ft. Wayne 1, Ind.
 Delster Machine Co., 1933 E. Wayne St., Ft. Wayne 4, Ind.149
 Denver Equipment Co., P. O. Box 5268, Denver 17, Colo.146
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
 Farrel-Birmingham Co., Inc., Ansonia, Conn.
 Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.64
 George Haiss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn.156
 Hewitt Rubber of Buffalo, Div., of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y.56
 Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia.67
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio63
 Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y.15
 Kent Mill Co., 10 Rapelye St., Brooklyn 31, New York, N. Y.
 Lewistown Fdry. & Mach. Co., Lewistown, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.1
 Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.139
 Maddox Foundry & Machine Works, Archer, Fla.
 Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
 Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.
 The Multi-Metal Wire Cloth Co., 1350 Garrison Ave., New York 59, N. Y.
 Multiplex Concrete Machinery Co., Elmore, Ohio.163
 Newark Wire Cloth Co., 354 Verona Ave., Newark 4, N. J.
 New Holland Mfg. Co., Mountville, Pa.154
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis.22
 Nortmann-Duffke Co., 2740 S. 32nd St., Milwaukee, Wis.
 Orville Simpson Co., 1230 Knowlton St., Cincinnati 23, Ohio
 Overstrom & Sons, 2213 W. Mission Rd., Alhambra, Calif.
 Pioneer Eng. Wks., Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill.
 W. A. Riddell Corp., Bucyrus, Ohio
 Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.56
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 John A. Roebing's Sons Co., 640 S. Broad, Trenton 2, N. J.17
 Screen Equipment Co., Inc., 9 Lafayette Ave., Buffalo 13, N. Y.144
 Separations Eng. Corp., 110 E. 42nd St., New York 17, N. Y.
 Simplicity Engr. Co., Oak St., Durand, Mich.131

DIRECTORY

Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis. 11
 Stearns Mfg. Co., Inc., Adrian, Mich.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Straub Mfg. Co., 507 Chestnut, Oakland, Calif. 28
 Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass. 2nd Cover
 Sutton, Steele & Steele, Inc., 1031 S. Haskell, Dallas 10, Tex.
 W. Toepfer & Sons, Inc., 1450 E. Park Pl., Milwaukee 11, Wis.
 Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
 The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio 287
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Universal Vibrating Screen Co., Deane Blvd. & St. Paul R.R., Racine, Wis. 159
 Williams Patent Crusher & Pulverizer Co., 2701 North Broadway, St. Louis 6, Mo. 27
 Wisconsin Foundry & Machine Co., 623 East Main, Madison 1, Wis.

SCREW CONVEYORS (See Conveyors, Screw)

SCRUBBERS, Crushed Stone, Gravel

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco, Calif.
 Geo. E. Christopher & Son Iron Wks., 1220 Blaine, Wichita 1, Kans.
 Colorado Iron Works Co., 1624 17th St., Denver 2, Colo.
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
 Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
 The Dorr Co., 570 Lexington Ave., New York 22, N.Y. 54
 Eagle Iron Works, 129 Holcomb, Des Moines 4, Ia. 301
 J. B. Ehsam & Sons Mfg. Co., Enterprise, Kans. 158
 Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia. 67
 Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N.Y. 15
 Knickerbocker Co., 603 Liberty St., Jackson, Mich.
 Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
 McCarter Iron Wks., Inc., Mill & Washington Sts., Norristown, Penn.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Maddox Foundry & Machine Wks., Archer, Fla.
 Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
 Nordberg Mfg. Co., 3083 S. Chase Ave., Milwaukee 7, Wis. 22
 Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
 Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.

Smith Eng. Works, 532 E. Capitol Dr., Milwaukee 12, Wis. 11
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 W. Toepfer & Sons, Inc., 1450 E. Park Pl., Milwaukee 11, Wis.
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
 The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio 287
 Universal Eng. Corp., 625 C Ave. W., Cedar Rapids, Iowa
 Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y. 287
 Webster Mfg. Co., Tiffin 16, Ohio.
 Wisconsin Foundry & Machine Co., 623 East Main, Madison 1, Wis.

SEAL RINGS, Kiln

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 The Babcock & Wilcox Co., 85 Liberty St., New York, N. Y. 74
 Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
 Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
 Electric Steel Fdy., 2141 N.W. 25th Ave., Portland 10, Ore.
 Huron Industries, Inc., Alpena, Mich.
 Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N.Y. 15
 Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
 Manitowoc Engr. Works, Manitowoc, Wis. 42
 F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
 Traylor Eng. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 7
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

SEMI-TRAILERS, Truck

Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
 Easton Car & Construction Co., Box 270, Easton, Penn.
 Fruehauf Trailer Co., 10940 Harper Ave., Detroit 13, Mich.
 The Hell Co., 3000 W. Montana, Milwaukee, Wis.
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Sanford-Day Iron Works, Inc., Dale Ave., Knoxville, Tenn.
 Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo, N. Y.

SEPARATORS, Air (See Air Separators)

SEPARATORS, Electrostatic (See Electrical Separators)

SEPARATORS, Magnetic (See Magnetic Separators)

SEPARATORS, Slurry (See Slurry Filters)

SEPTIC TANK MOLDS, Concrete

Ashland Vault Inc., 114 Seventh St., Ashland, Ohio
 Automatic Septic Tank Co., Gallon, Ohio

Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
 Unit System Septic Tanks Co., Oregon, Ill.

SEWER PIPE MACHINES, Concrete (See Pipe Molds & Machines)

SHAFTING

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 The American Brass Co., 414 Meadow St., Waterbury 88, Conn.
 C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
 Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn. 65
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
 Continental Gin Co., Industrial Div., 4500 5th Ave., S. Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis, Minn.
 Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
 J. B. Ehsam & Sons Mfg. Co., Enterprise, Kans. 158
 Farrell-Birmingham Co., Ansonia, Conn.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N.Y. 15
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 The Medart Co., 100 Potomac St., St. Louis 18, Mo.
 Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio.
 W. A. Riddell Corp., Bucyrus, Ohio
 Joseph T. Ryerson & Son, Inc., 2553 W. 16th St., Box 8000-A, Chicago 80, Ill. 6
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
 Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.
 Wisconsin Steel Co., 180 N. Michigan Ave., Chicago, Ill.
 T. B. Wood's Sons Co., 5th Ave., Chambersburg, Penn.

SHEAVES

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 American Hoist & Derrick Co., 63 S. Roberts St., St. Paul 1, Minn. 153
 American Manganese Steel Div. of American Brake Shoe Co., 377 E. 14th St., Chicago Heights, Ill. 45
 Atlantic Gear Works, Inc., 200 Lafayette St., New York 12, N. Y.
 The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
 Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Browning Mfg. Co., Inc., Maysville, Ky.
 C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver, Colo.

Clyde Iron Works, Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.
 Continental Gin Co., Industrial Div., 4500 5th Ave., Birmingham, Ala. 136
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 The Dayton Rubber Mfg. Co., Riverview Ave., Dayton 1, Ohio
 Diamond Iron Works, Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
 Dobbie Foundry Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
 Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
 Downs Crane & Hoist Co., 540 W. Vernon Ave., Los Angeles 37, Calif.
 J. B. Ehsam & Sons Mfg. Co., Enterprise, Kans. 158
 Electric Steel Fdy., 2141 N.W. 25th Ave., Portland 10, Ore.
 Farrell-Birmingham Co., Ansonia, Conn.
 Farrell-Cheek Steel Co., P. O. Box 721, Sandusky, Ohio
 The Frog, Switch & Mfg. Co., Carlisle, Penn. 150
 Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
 The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo. 30
 The B. F. Goodrich Co., Akron, Ohio 3
 George Halss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
 Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Ia. 67
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 W. A. Jones Foundry & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
 Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N.Y. 15
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Kent Machine Co., Cuyahoga Falls, Ohio 187
 Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill. 1
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Maddox Foundry & Machine Works, Archer, Fla.
 Magnolia Metal Co., 18 W. Jersey St., Elizabeth, N. J.
 Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 The Medart Co., 100 Potomac St., St. Louis 18, Mo.
 D. J. Murray Mfg. Co., Wausau, Wis.
 Ottumwa Iron Works, 402 W. Main St., Ottumwa, Iowa
 Pacific Car & Foundry Co., Factory St., Renton, Wash.
 Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
 Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Avenue, Passaic, N. J. 56
 Rockwood Mfg. Co., 1801 English Ave., Indianapolis, Ind.
 Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
 Sanford-Day Iron Works, Inc., 612 Dale Ave., Knoxville 9, Tenn.
 Sauerman Bros., Inc., 522 S. Clinton St., Chicago 7, Ill.
 Sprout, Waldron, Muncy, Penn.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Stroh Process Steel Co., 1428 High St., Pittsburgh 12, Penn.

DIRECTORY

Sullivan Division, Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
The Tool Steel Gear & Pinion Co., 211 Township Ave., Cincinnati 16, Ohio
The Upson - Walton Co., Perry Payne Bldg., Cleveland 13, Ohio
Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.
Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.
T. B. Woods' Sons Co., 5th Ave., Chambersburg, Penn.
Worthington Pump & Machinery Corp., 37 Appleton St., Holyoke, Mass.

SHOES, Safety (See Safety Equipment)

SHOVEL REPAIR PARTS

Allied Steel Products, Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio
Alloys Steel & Metals Co., 1862 E. 55th St., Los Angeles 11, Calif.
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
Audubon Wire Cloth Corp. (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn.
Bucyrus-Erie Co., South Milwaukee, Wis.
Farrell-Cheek Steel Co., P. O. Box 721, Sandusky, Ohio
The Frog, Switch & Mfg. Co., Carlisle, Penn.
The General Excavator Co., Cheney St., Marion, Ohio
Harnischfeger Corp., 4400 W. National, Milwaukee, Wis.
Industrial Gear Mfg. Co., 4544 W. Van Buren St., Chicago 24, Ill.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Lima Locomotive Wks., Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.
Magnolia Metal Co., 18 W. Jersey St., Ellzabeth 4, N. J.
Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
Manitowoc Engr. Wks., Manitowoc, Wis.
Marion Power Shovel Co., West Center St., Marion, Ohio
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
The Osgood Co., General Excavator Co., Marion, O.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Taylor-Wharton Iron and Steel Co., High Bridge, N. J.

SHOVELS, Compressed Air

Browning Crane & Shovel Co., 16226 Waterloo Rd. N.E., Cleveland, Ohio
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Nordberg Mfg. Co., 3083 S. Chase St., Milwaukee 7, Wis.
The Osgood Co., General Excavator Co., Marion, O.

Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Worthington Pump & Machinery Corp., 744 Broad St., Newark 2, N. J.

SHOVELS, Hand

Bucyrus-Erie Co., South Milwaukee, Wis.
Koehring Co., 3026 Concordia Ave., Milwaukee 10, Wis.
The Union Fork & Hoe Co., 9 Buttes Ave., Columbus 8, Ohio
The Wood Shovel & Tool Co., Piqua, Ohio

SHOVELS, Power, Diesel

Austin-Western Co., Aurora, Ill.
Bay City Shovels Inc., Bay City, Mich.
The Browning Crane & Shovel Co., 161st & Waterloo Rd., Cleveland 10, Ohio
Buckeye Traction Ditcher Co., Crystal St., Findlay, Ohio
Bucyrus-Erie Co., South Milwaukee, Wis.
Byers Machine Co., Ravenna, Ohio
The Cooper-Bessemer Corp., Sandusky St., Mt. Vernon, Ohio
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Enterprise Engine & Fdy. Co., 18th & Florida Sts., San Francisco 10, Calif.
The General Excavator Co., Cheney St., Marion, Ohio
Hanson Clutch & Mch. Co., Wall & Miami Sts., Tiffin 15, Ohio
Harnischfeger Corp., 4400 W. National, Milwaukee, Wis.
Industrial Brownhoist Corp., 135 Washington St., Bay City, Mich.
Insley Mfg. Co., 801 Olney St., Indianapolis, Ind.
Keystone Driller Co., 2001-21 8th Ave., Beaver Falls, Penn.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Lima Locomotive Wks., Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.
Manitowoc Engr. Wks., Manitowoc, Wis.
Marion Power Shovel Co., W. Center St., Marion, O.
Michigan Power Shovel Co., Second & Miller Blvd., Benton Harbor, Mich.
Northwest Engr. Co., 28 E. Jackson Blvd., Chicago 4, Ill.
The Osgood Co., General Excavator Co., Marion, O.
The Thew Shovel Co., 1374 E. 28th St., Lorain, Ohio
Unit Crane & Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis.

SHOVELS, Power, Diesel Electric, Electric

Austin-Western Co., Aurora, Ill.
Bay City Shovels, Inc., Bay City, Mich.
Bucyrus-Erie Co., So. Milwaukee, Wis.
Harnischfeger Corp., 4400 W. National Ave., Milwaukee, Wis.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Lima Locomotive Wks., Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.

Manitowoc Engr. Wks., Manitowoc, Wis.
Marion Power Shovel Co., W. Center St., Marion, Ohio
The Osgood Co., The General Excavator Co., Marion, Ohio
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

SHOVELS, Power, Gasoline

American Steel Dredge Co., Inc., 2511 Taylor St., Fort Wayne 6, Ind.
Austin-Western Co., Aurora, Ill.
Bay City Shovels, Inc., Bay City, Mich.
The Browning Crane & Shovel Co., 161st & Waterloo Rd., Cleveland 10, Ohio
Bucyrus-Erie Co., South Milwaukee, Wis.
The Browning Crane & Shovel Co., 16226 Waterloo Rd., N.E., Cleveland, Ohio
Buckeye Traction Ditcher Co., Crystal St., Findlay, Ohio
Byers Machine Co., Ravenna, Ohio
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
The General Excavator Co., Cheney St., Marion, O.
Hanson Clutch & Mch. Co., Wall & Miami Sts., Tiffin 15, Ohio
Harnischfeger Corp., 4400 W. National, Milwaukee, Wis.
Industrial Brownhoist Corp., 135 Washington St., Bay City, Mich.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
Keystone Driller Co., 2001-21 8th Ave., Beaver Falls, Penn.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Lima Locomotive Wks., Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.
Manitowoc Engr. Wks., Manitowoc, Wis.
Marion Power Shovel Co., W. Center St., Marion, O.
Michigan Power Shovel Co., Second & Miller Blvd., Benton Harbor, Mich.
Northwest Engr. Co., 28 E. Jackson Blvd., Chicago 4, Ill.
The Osgood Co., General Excavator Co., Marion, O.
"Quick-Way" Truck Shovel Co., P. O. Box 1800, Denver, Colo.
Spears-Wells Mch. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
The Thew Shovel Co., 1374 E. 28th St., Lorain, Ohio
Unit Crane & Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis.

SHOVELS, Power, Gasoline-Electric

Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
Bucyrus-Erie Co., South Milwaukee, Wis.
Harnischfeger Corp., 4400 W. National Ave., Milwaukee, Wis.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.
Manitowoc Engr. Wks., Manitowoc, Wis.
Marion Power Shovel Co., W. Center St., Marion, O.

SHOVELS, Power, Steam

Bucyrus-Erie Co., South Milwaukee, Wis.
Manitowoc Engr. Wks., Manitowoc, Wis.
Marion Power Shovel Co., W. Center St., Marion, Ohio
The Osgood Co., The General Excavator Co., Marion, Ohio

SHOVELS, Power, Underground

Austin - Western Co., 601 Farnsworth Ave., Aurora, Ill.
Bucyrus-Erie Co., South Milwaukee, Wis.
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Goodman Mfg. Co., 4834 S. Halsted St., Chicago 9, Ill.
Harnischfeger Corp., 4400 W. National, Milwaukee, Wis.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Lima Locomotive Works, Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Marion Power Shovel Co., W. Center St., Marion, O.
Manitowoc Engr. Works, Manitowoc, Wis.
Northwest Engr. Co., 28 E. Jackson Blvd., Chicago 4, Ill.
The Osgood Co., The General Excavator Co., Marion, Ohio
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
The Thew Shovel Co., 1374 E. 28th St., Lorain, Ohio

SHOVELS, Tractor

Allis-Chalmers Tractor Div., 1126 S. 70th St., Milwaukee, Wis.
Anthony Co., Inc., Streator, Ill.
Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill.
Austin - Western Co., 601 Farnsworth Ave., Aurora, Ill.
The Browning Crane & Shovel Co., 16226 Waterloo Rd. N. E., Cleveland, Ohio
Bucyrus-Erie Co., South Milwaukee, Wis.
The Byers Machine Co., Lock Box 390, Ravenna, Ohio
Cleveland Tractor Co., 19300 Euclid Ave., Cleveland 17, Ohio
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
The General Excavator Co., Cheney St., Marion, O.
Hanson Clutch & Mch. Co., Tiffin, Ohio
Hi-Way Service Corp., 3857 W. Wisconsin Ave., Milwaukee, Wis.
The Frank G. Hough Co., East Sunnyside Ave., Libertyville, Ill.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
Lessman Mfg. Co., 20th & Easton Blvd., Des Moines 4, Iowa
Lima Locomotive Works, Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.
Manitowoc Engr. Works, Manitowoc, Wis.
Minneapolis-Moline Power Implement Co., Box 1050, Minneapolis 1, Minn.
The Osgood Co., General Excavator Co., Marion, O.
Ottawa Steel Products, Inc., Ottawa, Kan.
Spears-Wells Mch. Co., Inc., 1832 W. 9th St., Oakland, Calif.

DIRECTORY

Trackson Co., Milwaukee 1, Wis. 40
Unit Crane & Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis. 29

SHOVELS, Truck-Mounted

American Steel Dredge Co., Inc., 2511 Taylor St., Fort Wayne 8, Ind.
Bay City Shovels, Inc., 2611 Center Ave., Bay City, Mich.
The Browning Crane & Shovel Co., 161st & Waterloo Rd., Cleveland 10, Ohio
Bucyrus-Erie Co., South Milwaukee, Wis. 4th Cover
The Byers Machine Co., Ravenna, Ohio
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
The General Excavator Co., Cheney St., Marion, O. 62
Hanson Clutch & Mch. Co., Wall & Miami Sts., Tiffin 15, Ohio
Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 158
Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Lima Locomotive Works, Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill. 1
Manitowoc Eng. Works, Manitowoc, Wis. 42
Marion Power Shovel Co., W. Center St., Marion, O.
Michigan Power Shovel Co., Second & Miller Blvd., Benton Harbor, Mich.
Northwest Eng. Co., 28 E. Jackson Blvd., Chicago 4, Ill. 5
The Osgood Co., The General Excavator Co., Marion, Ohio
"Quick-Way" Truck Shovel Co., 4150 Josephine St., Denver, Colo.
Spear-Weils Mch. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
The Thew Shovel Co., 1374 E. 28th St., Lorain, Ohio
Unit Crane & Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis. 29

SHREDDERS, Plaster

American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo. 58
The Jeffrey Mfg. Co., 925-99 N. 4th St., Columbus 16, Ohio 63

SIEVES, Testing

Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Penn.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Newark Wire Cloth Co., 351 Verona Ave., Newark 4, N. J.
Sturtevant Mill Co., 41 Harrison Square, Boston 22, Mass. 2nd Cover
The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio 287

SILO STAVE MACHINES, Concrete

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
Besser Mfg. Co., Alpena, Mich. 170, 183
Concrete Transport Mixer Co., 650 Rosedale, St. Louis 12, Mo. 189

Stearns Mfg. Co., Inc., Adrian, Mich.

SILOS, Storage

Beaumont Birch Co., 1505 Race St., Philadelphia 2, Penn.
The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kans. 160
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
M. A. Long Co., 10 W. Chase St., Baltimore, Md.
E. C. Machin Co., 624 Commonwealth Bldg., Allentown, Penn.
MacDonald Eng. Co., 188 W. Randolph St., Chicago 1, Ill.
Marietta Concrete Corp., Marietta, Ohio
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
The Neff & Fry Co., 150 S. Main St., Camden, Ohio
The Nicholson Co., Inc., 10 Rockefeller Plaza, New York 20, N. Y.
Noble Corp., 1860 7th St., Oakland 7, Calif.
Standard Steel Corp., 5001 Boyle St., Los Angeles 11, Calif.

SKIP BUCKETS

American Mangnese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Beaumont Birch Co., 1512 Birch St., Philadelphia, Penn.
Besser Mfg. Co., Alpena, Mich. 170, 183
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill.
Dempster Bros., Inc., Springdale Ave., Knoxville, Tenn.
The Elmco Corp., P. O. Box 300, Salt Lake City, Utah
Gar-Bro Mfg. Co., Div. of Garlinghouse Bro. Mfg. Co., 2416 E. 16th St., Los Angeles 21, Calif.
Godfrey Conveyor Co., Inc., 13th & Wolf, Elkhart, Ind.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
Mine & Smelter Supply Co., P. O. Box 5270, Terminal Annex, Denver 17, Colo.
Pressed Steel Car Co., Industrial Div., 2500 Koppers Bldg., Pittsburgh 30, Penn.
Ransome Mch. Corp., 42 Thomas St., Dunellen, N. J.
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
Rogers Iron Wks., 11th & Pearl, Joplin, Mo.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Street Brothers Machine Co., 415 Times Bldg., Chattanooga 2, Tenn.
Universal Concrete Machinery Co., Inc., 297 S. High St., Columbus 15, Ohio
Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.

Webster Mfg., Inc., Tiffin, Ohio

SKIP LOADERS

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Beaumont Birch Co., 1512 Race St., Philadelphia, Penn.
Besser Mfg. Co., Alpena, Mich. 170, 183
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
Dempster Bros., Inc., Springdale Ave., Knoxville, Tenn.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
E. B. Kelley Co., Farmingdale, N. J.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
M. P. McCaffrey, Inc., 2121 E. 25th St., Los Angeles 11, Calif.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Webster Mfg. Inc., Tiffin, Ohio

SKIPS, Hoist

Allis-Chalmers Mfg. Co., 29 Milwaukee 1, Wis. 49, 53
Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
Beaumont Birch Co., 1505 Race St., Philadelphia 2, Penn.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio
Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
Besser Mfg. Co., Alpena, Mich. 170, 183
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver, Colo.
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
Clyde Iron Wks., Inc., 29th Ave. W. and Michigan St., Duluth 1, Minn.
Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo. 191
Dempster Bros., Inc., Springdale Ave., Knoxville, Tenn.
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo. 146
Easton Car & Construction Co., Box 270 Easton, Penn.
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
W. A. Jones Foundry & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
McKiernan-Terry Corp., 15 Park Row, New York 7, N. Y.

Maddox Foundry & Machine Works, Archer, Fla.
Mine & Smelter Supply Co., P. O. Box 5270, Terminal Annex, Denver, Colo.
Multiplex Concrete Machinery Co., Elmore, Ohio. 160
Ottumwa Iron Works, 402 W. Main St., Ottumwa, Iowa
Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Penn.
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stearns Rogers Mfg. Co., 1718-22 California St., Denver 2, Colo.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Street Bros. Machine Co., 415 Times Bldg., Chattanooga 2, Tenn.
Universal Concrete Machinery Co., Inc., 297 S. High St., Columbus 15, Ohio
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
Webster Mfg. Inc., Tiffin, Ohio

SLAKERS

(See Hydrators, Lime)

SLINGS, Wire Rope

(See Wire Rope Slings)

SLUGS, Grinding

(See Grinding Media)

SLURRY AGITATORS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Denver Equipment Co., P. O. Box 5268, Denver, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y.
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
The Galigher Co., 48 S. 2nd East St., Salt Lake City, Utah
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
International Engr., Inc., Bolander Ave., Dayton 1, Ohio
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 15
Manitowoc Eng. Works, Manitowoc, Wis. 42
Morse Bros. Machinery, P. O. Box 1708, Denver 1, Colo.
Omega Machine Co., 9 Codding St., Providence 1, R. I.
Patterson Fdy. & Mch. Co., East Liverpool, Ohio.
H. K. Porter Co., Inc., 22 Oliver Bldg., Pittsburgh, Penn.
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71
Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
Struthers Wells Corp., 1003 Pennsylvania Ave. W., Warren, Penn.
Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn. 1
Western Machinery Co., 760 Folsom St., San Francisco, Calif.

SLURRY FILTERS

Bird Machine Co., S. Walpole, Mass.
Denver Equipment Co., 1400 17th St., Denver 17, Colo. 146
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Filter Media Corp., Irvington-on-Hudson, N. Y.

DIRECTORY

The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
Manitowoc Engr. Works, Manitowoc, Wis. 42
Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y. 71
F. L. Smidh & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71

SLURRY MIXERS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah. 71
The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
International Engr., Inc., Bolander Ave., Dayton 1, Ohio 1
Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn. 1
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif. 1
Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y. 71
Patterson Fdry. & Mach. Co., E. Liverpool, Ohio 1
H. K. Porter Co., Inc., 22 Oliver Bldg., Pittsburgh, Penn. 1
F. L. Smidh & Co., 11 W. 42nd St., New York, N. Y. 71
Struthers Wells Corp., 1003 Pennsylvania Ave., W. Warren, Penn. 1

SLURRY PUMPS

The Allen - Sherman - Hoff Co., 1435 Locust St., Philadelphia 2, Penn. 78
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y. 1
Byron Jackson Co., P. O. Box 2017 Terminal Annex, Los Angeles 54, Calif. 1
The Deming Co., Salem, Ohio. 1
Denver Equipment Co., P. O. Box 5268, Denver, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah. 71
Georgia Iron Wks., 605 Twelfth St., Augusta, Ga. 1
Goulds Pumps, Inc., Seneca Falls, N. Y. 1
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Hills-McCanna Co., 3025 N. Western Ave., Chicago 18, Ill. 1
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis. 1
Lawrence Machine & Pump Corp., 371 Market St., Lawrence, Mass. 1
Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill. 1
Millville Irons Works, Inc., Sixth St. & Florence Ave., Millville, N. J. 1
Morris Machine Works, 31 E. Genesee St., Baldwinville, N. Y. 151
Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y. 71
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill. 1
H. K. Porter Co., Inc., 22 Oliver Bldg., Pittsburgh, Penn. 1
F. L. Smidh & Co., 11 W. 42nd St., New York 18, N. Y. 68, 71

Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif. 1
Western Machinery Co., 760 Folsom St., San Francisco, Calif. 1
A. R. Wilfley & Sons, Inc., P. O. Box 2330, Denver 1, Colo. 31
Worthington Pump & Machinery Corp., 744 Broad St., Newark 2, N. J. 1

SLURRY SCREENS

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Buffalo Wire Wks. Co., 308-332 Terrace, Buffalo, N. Y. 1
Denver Equipment Co., P.O.B. 5268, Denver 17, Colo. 146
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y. 15
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
The Ludlow-Saylor Wire Co., Newstead Ave., Wabash R. R., St. Louis 10, Mo. 302
Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill. 1
Robins Conveyors Inc., (Div. Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J. 56
F. L. Smidh & Co., 11 W. 42nd St., New York 18, N. Y. 71
The W. S. Tyler Co., 3615 Superior Street, Cleveland 14, Ohio 287

SLURRY SEPARATORS

Bird Machine Co., S. Walpole, Mass. 1
The Bonnot Co., Mulberry St., Canton 2, Ohio 1
Denver Equipment Co., P.O.B. 5268, Denver 17, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Patterson Fdry. & Mach. Co., E. Liverpool, Ohio 1
Separation Process Co., Fuller Bldg., Catasauqua, Penn. 1
F. L. Smidh & Co., 11 W. 42nd St., New York 18, N. Y. 71
Western Machinery Co., 760 Folsom St., San Francisco, Calif. 1

SLURRY THICKENERS

Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis. 1
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo. 146
The Dorr Co., 570 Lexington Ave., New York 22, N. Y. 54
The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah. 71
The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah 140
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill. 1
Morse Bros. Machinery Co., P. O. Box 1708, Denver 1, Colo. 1
Separation Process Co., Fuller Bldg., Catasauqua, Penn. 1
F. L. Smidh & Co., 11 W. 42nd St., New York 18, N. Y. 71
Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif. 1
Western Machinery Co., 760 Folsom St., San Francisco, Calif. 1

SOCKETS, Wire Rope (See also Wire Rope Fittings)

American Cable Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 1
American Car & Foundry Co., 30 Church St., New York 8, N. Y. 3rd cover
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio 65
Bethlehem Steel Co., Bethlehem, Penn. 65
Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill. 1
Electric Steel Fdy. Co., 2141 N. W. 25th Ave., Portland 10, Ore. 1
Electroline Co., 4121 S. La Salle St., Chicago, Ill. 1
Farrell-Cheek Steel Co., P. O. Box 721, Sandusky, Ohio 1
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif. 1
Hazard Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 3rd Cover
Thomas Laughlin Co., 143 Fore St., Portland 6, Me. 1
A. Leschen & Sons Rope Co., 5909 Kennerly Ave., St. Louis 12, Mo. 138
Macwhyte Co., 2949 14th Ave., Kenosha, Wis. 1
John A. Roebbing's Sons Co., 640 S. Broad, Trenton 2, N. J. 17
Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
United States Steel Supply Co., 1319 Wabansia Ave., Chicago, Ill. 1
The Upson-Walton Co., Perry Payne Bldg., Cleveland 13, Ohio 8

SOFT STONE ELIMINATORS (See also Scrubbers)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Eagle Iron Works, 129 Holcomb, Des Moines 4, Iowa 301
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
Knickerbocker Co., 603 Liberty St., Jackson, Mich. 1
Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis. 1
McLanahan & Stone, 200 Wall St., Hollidaysburg, Penn. 139
New Holland Mfg. Co., Mountville, Penn. 154
Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn. 72
Simplicity Engr. Co., Oak St., Durand, Mich. 131
Smith Eng. Wks., 532 E. Capitol Dr., Milwaukee, Wis. 10, 11

SPEED REDUCERS (See also Gear Reducers)

Abart Gear & Mach. Co., 4834 W. 16th St., Chicago 50, Ill. 1
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
Atlantic Gear Works, Inc., 200 Lafayette St., New York 12, N. Y. 1
The Cleveland Worm & Gear Co., 3249 E. 8th St., Cleveland 1, Ohio 136
Continental Gin Co., Industrial Div., 4500 5th Ave., Birmingham, Ala. 1
The Conveyor Co., Inc., 3260 East Slauson Ave., Los Angeles 11, Calif. 1

The Dayton Rubber Mfg. Co., P.O. Box 1004, Dayton 1, Ohio 1
DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J. 1
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
Falk Corp., 3001 W. Canal St., Milwaukee 8, Wis. 1
Farrel-Birmingham Co., Inc., Ansonia, Conn. 1
Foote Bros. Gear & Machine Corp., 5225 South Western Blvd., Chicago 9, Ill. 1
Huron Industries, Inc., Alpena, Mich. 1
Gears & Forgings, Inc., 3012 Woodhill Rd., Cleveland, Ohio 1
General Electric Co., 1 River Road, Schenectady 5, N. Y. 1
The Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind. 1
Graham Transmission, Inc., 3754 N. Holton St., Milwaukee 12, Wis. 1
Joshua Hendy Iron Works, Box 37, Sunnyvale, Calif. 1
Iowa Mfg. Co., 916 16th St. N.E., Cedar Rapids, Iowa 67
D. O. James Mfg. Co., 1140 W. Monroe St., Chicago, Ill. 1
Janette Mfg. Co., 556 W. Monroe St., Chicago 6, Ill. 1
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill. 1
W. A. Jones Foundry & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill. 1
Kent Machine Co., Cuyahoga Falls, Ohio 187
Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn. 1
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif. 1
Michigan Tool Co., Cone Drive Div., 7171 McNichols Rd., Detroit 12, Mich. 1
Ottumwa Iron Works, 402 W. Main St., Ottumwa, Iowa 1
Palmer-Bee Co., 1753 Poland Ave., Detroit, Mich. 1
Patterson Fdry. & Mach. Co., E. Liverpool, Ohio 1
Philadelphia Gear Wks., Inc., Erie Ave. & G St., Philadelphia 34, Penn. 1
Reeves Pulley Co., Columbus, Ind. 1
Winfield E. Smith, Inc., Springfield, Erie County, N. Y. 1
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill. 1
The Webb Corp., 403 E. Broadway, Webb City, Mo. 1
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn. 1
Worthington Pump & Machinery Corp., Harrison, N. J. 1

SPOUTS (See also Chutes)

Alpha Tank & Sheet Metal Co., 5001 S. 38th St., St. Louis 16, Mo. 1
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
L. Burmeister Co., 3225 W. Burnham St., Milwaukee 4, Wis. 1
Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala. 136
J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 156
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo. 64
George Haiss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y. 1
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio 1
R. R. Howell Co., P. O. Box 262, Minneapolis, Minn. 1

DIRECTORY

Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York, N. Y. 14, 15
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
Lippmann Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Sprout, Waldron, Muncy, Penn.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass.
Traylor Eng. & Mfg. Co., Allentown, Penn.
The Webb Corp., 402 E. Broadway, Webb City, Mo.
Webster Mfg., Inc., Tiffin, Ohio

SPRAY COOLING SYSTEMS

American Blower Corp., Box 58, Roosevelt Park Annex, Detroit 32, Mich.
Blinks Mfg. Co., 3114-40 Carroll Ave., Chicago 12, Ill.
Buffalo Forge Co., P. O. Box 985, Buffalo, N. Y.
Spraying Systems Co., 4021 W. Lake St., Chicago, Ill.

SPRAYS, Water

Blinks Mfg. Co., 3114 Carroll Ave., Chicago 12, Ill.
The Deister Concentrator Co., 915 Glasgow Ave., Ft. Wayne, Ind.
Deister Machine Co., 1933 E. Wayne St., Ft. Wayne 4, Ind.
Spraying Systems Co., 4021 W. Lake St., Chicago 24, Ill.

SPROCKETS

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Continental Gin Co., Industrial Div., 4500 5th Ave., Birmingham, Ala.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Diamond Chain & Mfg. Co., 402 Kentucky Ave., Dept. 520, Indianapolis 7, Ind.
Diamond Iron Wks., Inc. & The Mahr Mfg. Co., Div., 1800 N. 2nd St., Minneapolis 11, Minn.
J. B. Ehsam & Sons Mfg. Co., Enterprise, Kans.
Electric Steel Foundry, 2141 N.W. 25th Ave., Portland 10, Ore.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Farrell-Cheek Steel Co., P. O. Box 721, Sandusky, Ohio
The Frog, Switch & Mfg. Co., Carlisle, Penn.
Guendler Crusher & Pulv. Co., 2915-17 N. Market St., St. Louis, Mo.
George Halss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
Industrial Gear Mfg. Co., 4544 W. Van Buren St., Chicago 26, Ill.
Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16 Ohio

W. A. Jones Fdry. & Mach. Co., 4401 Roosevelt Rd., Chicago, Ill.
Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave. Bldg., New York, N. Y. 14, 15
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Kent Machine Co., Cuyahoga Falls, Ohio
Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.
Lippmann Eng. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.
Maddox Foundry & Machine Wks., Archer, Fla.
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
Morse Chain Co., Turner Pl., Ithaca, N. Y.
Palmer-Bee Co., 1753 Poland Ave., Detroit, Mich.
Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Philadelphia Gear Wks., Inc., Erie Ave. & G St., Philadelphia 34, Penn.
Pioneer Engineering Works, 1515 Central Ave., Minneapolis 13, Minn.
Rogers Iron Wks. Co., 11th & Pearl, Joplin, Mo.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Stroh Process Steel Co., 1428 High St., Pittsburgh 12, Penn.
The Tool Steel Gear & Pinion Co., 211 Township Ave., Cincinnati 16, Ohio
Taylor-Wharton Iron & Steel Co., High Bridge, N. J.
Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.
Webster Mfg., Inc., Tiffin, Ohio
Wisconsin Fdry. & Mach. Co., 623 E. Main, Madison, Wis.

STAIR TREADS & STEPS, Industrial

The Carborundum Co., Niagara Falls, N. Y.
Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn.
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kans.
The B. F. Goodrich Co., Akron, Ohio
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn.
Fred T. Kern Co., P. O. Box 2057, Milwaukee 1, Wis.
Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
Lippman Engr. Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
Lukens Steel Co., 1945 Gillen St., Coatsville, Penn.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Quaker Rubber Corp., Comly & Milnor St., Philadelphia 24, Penn.
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
Southern Friction Materials Co., P. O. Box 1475, Charlotte 1, N. C.
U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y.

STARTERS, Motor (See Electrical Equipment)

STEAM-CURING EQUIPMENT, Concrete

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio
The Chase Foundry & Mfg. Co., 240 Parsons Ave., Columbus 7, Ohio
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Multiplex Concrete Machinery Co., Elmore, Ohio

STEAM ENGINES, Stationary (See Engines)

STEEL, Abrasion-Resisting

The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
Atlantic Steel Corp., 1775 Broadway, New York 19, N. Y.
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
Bethlehem Steel Corp., 701 East Third St., Bethlehem, Penn.
Blaw - Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
The Elmcro Corp., P. O. Box 300, Salt Lake City 8, Utah
Farrell-Cheek Steel Co., P. O. Box 721, Sandusky, Ohio
Jones & Laughlin Steel Corp., 3rd Ave. & Ross St., Pittsburgh 30, Penn.
Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Calif.
Lukens Steel Co., Coatsville, Penn.
Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
Stroh Process Steel Co., 1428 High Street, Pittsburgh, Penn.
Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.
Taylor-Wharton Iron and Steel Co., High Bridge, N. J.
The Timken Roller Bearing Co., Canton 6, Ohio
Vulcan Iron Wks., 700 S. Main St., Wilkes-Barre, Penn.

STEEL, BAR

American Rolling Mill Co., 703 Curtis Street, Middletown, Ohio
American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio
Atlantic Steel Corp., 1775 Broadway, New York 19, N. Y.
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Calif.
Lukens Steel Co., 1945 Gillen St., Coatsville, Penn.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.

Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Jones & Laughlin Steel Corp., 3rd Ave. & Ross St., Pittsburgh 30, Penn.
Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland, Calif.
The Medart Co., 100 Potomac St., St. Louis 18, Mo.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Tennessee Coal, Iron & Railroad Co., Brown - Marx Bldg., Birmingham 2, Ala.
The Timken Roller Bearing Co., Canton 6, Ohio
Wisconsin Steel Co., 180 N. Michigan Ave., Chicago, Ill.

STEEL, Electric Furnace

The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
Atlantic Steel Corp., 1775 Broadway, New York 19, N. Y.
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
Chicago Steel Fdy. Co., 3720 So. Kedzie Ave., Chicago, Ill.
The Elmcro Corp., P. O. Box 300, Salt Lake City 8, Utah
Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Calif.
Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
Taylor-Wharton Iron and Steel Co., High Bridge, N. J.
The Timken Roller Bearing Co., Canton 6, Ohio

STEEL (Heat Resisting)

The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
American Brake Shoe Co., Electro-Alloys Div., Taylor St. & Abbey Rd., Elyria, Ohio
Atlantic Steel Corp., 1775 Broadway, New York 19, N. Y.
Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Calif.
Lukens Steel Co., 1945 Gillen St., Coatsville, Penn.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.

DIRECTORY

Republic Steel Corp., Republic Bldg., Cleveland, Ohio
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
The Timken Roller Bearing Co., Canton 6, Ohio

STEEL, Open Hearth

The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Jones & Laughlin Steel Corp., 3rd & Ross St., Pittsburgh 30, Penn.
Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Calif.
Lukens Steel Co., Coatesville, Penn.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
Stroh Process Steel Co., 1428 High St., Pittsburgh 12, Penn.
Tennessee Coal, Iron & Railroad Co., Brown - Marx Bldg., Birmingham 2, Ala.
The Timken Roller Bearing Co., Canton 6, Ohio
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y.
Wisconsin Steel Co., 180 N. Michigan Ave., Chicago, Ill.

STEEL PLATE

The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
Atlas Steel Construction Co., 42 Dutchess St., Irvington, N. Y.
Bethlehem Steel Corp., 701 East 3rd St., Bethlehem, Penn.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Jones & Laughlin Steel Corp., 3rd Ave. & Ross St., Pittsburgh 30, Penn.
Kaiser Co., Inc., Iron & Steel Div., Kaiser Bldg., Oakland 12, Calif.
Lukens Steel Co., Coatesville, Penn.
Minneapolis - Moline Power Implement Co., Box 1050, Minneapolis 1, Minn.
Pacific Car & Fdry. Co., Factory St., Renton, Wash.
Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Penn.
Pressed Steel Car Co., 2500 Koppers Bldg., Pittsburgh, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Tennessee Coal, Iron & Railroad Co., Brown - Marx Bldg., Birmingham 2, Ala.
Wisconsin Steel Co., 180 N. Michigan Ave., Chicago, Ill.

STEEL, Special Alloy

Allied Steel Products, Inc., 1109 N. E. C. Bldg., Cleveland, Ohio
Alloy Cast Steel Co., Marion, Ohio
American Brake Shoe Co., Electro-Alloys Div., Taylor St. & Abbey Rd., Elyria, Ohio
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
Atlantic Steel Corp., 1775 Broadway, New York 19, N. Y.
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
Bethlehem Steel Corp., 701 E. 3rd St., Bethlehem, Penn.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Penn.
The International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.
Kaiser Co., Iron & Steel Div., Kaiser Bldg., Oakland 12, Calif.
Kensington Steel Co., 505 Kensington Ave., Chicago, Ill.
Lukens Steel Co., Coatesville, Penn.
Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
Pacific Car & Fdry. Co., Factory St., Renton, Wash.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J.
The Timken Roller Bearing Co., Canton 6, Ohio
Wisconsin Steel Co., 180 N. Michigan, Chicago, Ill.

STEP FORMS, Concrete

Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
Multiplex Concrete Mchry. Co., Elmore, Ohio

STOKERS, Coal, for Lime Kilns, etc.

Arnold & Weigel, Inc., Woodville, Ohio
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
Conco Engineering Works, Div. of H. D. Conkey Co., 1501 W. Washington Rd., Mendota 1, Ill.

Combustion Eng. Corp., 1315 N. Branch St., Chicago, Ill.
Diamond Iron Works, Inc. & The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
The Her-Born Engr. & Mfg. Co., Box 666, Sandusky, Ohio
Iron Fireman Mfg. Co., 3170 W. 106th St., Cleveland 11, Ohio
Link-Belt Co., 2410 18th St., Chicago 8, Ill.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Penn.

STORAGE SYSTEMS, Radial

Barber-Greene Co., 631 W. Park Ave., Aurora, Ill.
Fred T. Kern Co., Box 2057, Milwaukee 1, Wis.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
The Nicholson Co., 10 Rockefeller Plaza, New York 20, N. Y.
Robins Conveyors Inc., (Div. Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J.
Sauerma Bros., Inc., 530 S. Clinton St., Chicago, Ill.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

STRANDS, Wire

American Cable Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn.
American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn.
Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.
Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
Hazard Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn.
John A. Roebling's Sons Co., 640 S. Broad, Trenton 2, N. J.
Union Wire Rope Corp., 21st & Manchester Ave., Kansas City 3, Mo.
The Upson-Walton Co., Perry Payne Bldg., Cleveland 13, Ohio

STRETCHER OUTFITS (See Safety Equipment)

STRUCTURAL STEEL FABRICATION

American Bridge Co., Frick Bldg., Pittsburgh, Penn.
American Car & Foundry Co., 30 Church St., New York 8, N. Y.
American Steel Dredge Co., Inc., 2500 W. Taylor St., Ft. Wayne, Ind.
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn.
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kans.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Dobble Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.

The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
Fabricating & Machinery, Inc., 3226 5th Ave. S., Birmingham 5, Ala.
The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah
Helmick Foundry-Machine Co., Lock Drawer 71, Fairmont, W. Va.
The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn.
Jones & Laughlin Steel Corp., 3rd Ave. & Ross St., Pittsburgh 30, Penn.
Fred T. Kern Co., Box 2057, Milwaukee 1, Wis.
Lukens Steel Co., 1945 Gillen St., Coatsville, Penn.
Madsen Iron Wks., 5631 Beckett St., Huntington Park, Calif.
The R. C. Mahon Co., 231 S. La Salle St., Chicago 4, Ill.
Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio
Millville Iron Works, Sixth & Florence Ave., Millville, N. J.
Minneapolis - Moline Power Implement Co., Box 1050, Minneapolis 1, Minn.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Penn.
Pressed Steel Car Co., 2500 Koppers Bldg., Pittsburgh, Penn.
Joseph T. Ryerson & Son, Inc., 16th & Rockwell St., Box 8000-A, Chicago, Ill.
Sedgwick & Stanhope, 15 S. William St., New York 14, N. Y.
Standard Steel Corp., 5001 Boyle St., Los Angeles, Calif.
Truscon Steel Co., Albert St., Youngstown, Ohio
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.
Webster Mfg., Inc., Tiffin, Ohio
Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

STUCCO COLORS (See Cement & Mortar Colors)

SUPERHEATERS (See Boilers)

SWITCHBOARDS & PANELS (See Electrical Equipment)

SWITCHES (Control, Electric) (See Electrical Equipment)

SWITCHES, Magnetic (See Electrical Equipment)

SWITCHES, Track

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
Bethlehem Steel Co., 701 E. 3rd St., Bethlehem, Penn.
The Central Frog & Switch Co., Station O, Box 9, Cincinnati, Ohio
Chase Fdy. & Mfg. Co., Columbus 7, Ohio
L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Penn.
The Frog, Switch & Mfg. Co., Carlisle, Penn.
Midwest Steel Corp., P.O. Box 271, Charleston 21, W. Va.
Pettibone Muhliken Corp., 4710 W. Division St., Chicago 51, Ill.

DIRECTORY

Pressed Steel Car Co., Industrial Div., 2500 Koppers Bldg., Pittsburgh 30, Penn.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137

TABLES, Washing, Concentrating (See also Concentrating Tables)

Allen Cone & Mch. Corp., 120 Broadway, New York 5, N. Y.
The Delster Concentrator Co., 915 Glasgow Ave., Ft. Wayne, Ind.
Delster Machine Co., 1933 E. Wayne St., Ft. Wayne 4, Ind. 149
Denver Equipment Co., P.O. Box 568, Denver 17, Colo. 146
Groch Engr. Co., 628 W. 9th St., Los Angeles 15, Calif.
The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Annex, Denver 17, Colo.
Overstrom & Sons, 2213 W. Mission Rd., Alhambra, Calif.
Separations Eng. Corp., 110 E. 42nd St., New York 17, N. Y.
Straub Mfg. Co., 507 Chestnut St., Oakland 7, Calif. 28

TACHOMETERS, Counters, etc.

Atlantic Gear Works, Inc., 200 Lafayette St., New York 12, N. Y.
The Bristol Co., Waterbury 91, Conn.
Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia, Penn. 50
The Foxboro Co., Neponset Ave., Foxboro, Mass.
Ideal Commutator Dresser Co., Park & Borden Ave., Sycamore, Ill.
Manning, Maxwell & Moore, Inc., 11 Elias St., Bridgeport 2, Conn.
Reliance Electric & Engr. Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio
Westinghouse Elec. & Mfg. Co., Hill St., E. Pittsburgh, Penn.

TAMP MACHINES, Concrete, Hand & Power

Anchor Concrete Machinery Co., 1191 Fairview Ave., Columbus 8, Ohio 164
Besser Mfg. Co., Alpena, Mich. 170, 183
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kans.
Kent Machine Co., Cuyahoga Falls, Ohio 187
Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
The Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Multiplex Concrete Machinery Co., Elmore, Ohio. 163
Quinn Wire & Iron Wks., Boone, Iowa
Stearns Mfg. Co., Inc., Adrian, Mich.

TANKS, Air

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
C. O. Bartlett & Snow Co., 6194 Harvard Ave., Cleveland, Ohio
Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y. 44
Curtis Pneumatic Machinery, Div. of Curtis Mfg. Co., 1905 Kielen Ave., St. Louis, Mo.
J. P. Devine Mfg. Co., Inc., 909 Shawnee, Mt. Vernon, Ill.
Gardner-Denver Co., Gardner & First Ave., Quincy, Ill.

Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Avenue Bldg., New York, N. Y. 14, 15
Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
Manitowoc Eng. Works., Manitowoc, Wis. 42
Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
Pacific Car & Fdy. Co., 4th & Factory St., Renton, Wash.
Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Penn.
Schramm Inc., West Chester, Penn.
Standard Steel Corp., 5001 Boyle St., Los Angeles, Calif.
Struthers Wells Corp., 1003 Pennsylvania Ave. W., Warren, Penn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.
Traylor Engr. & Mfg. Co., Allentown, Penn. 7
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.
Worthington Pump & Machy. Co., 37 Appleton St., Holyoke, Mass.

TANKS, Gasoline

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
Bethlehem Steel Co., Bethlehem, Penn. 65
Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago 4, Ill.
J. P. Devine Mfg. Co., Inc., 909 Shawnee, Mt. Vernon, Ill.
Firestone Tire & Rubber Co., 1200 Firestone Pkwy., Akron 17, Ohio 39
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
The Hell Co., 3000 W. Montana St., Milwaukee 1, Wis.
Henneuse Eng. Co., 400 Monroe St., Marion, Ohio
Lancaster Iron Wks., Inc., 550 S. Prince St., Lancaster, Penn.
McGann Mfg. Co., Inc., Box 1187, York, Penn.
National Steel Prod. Co., 1611 Crystal Ave., Kansas City 3, Mo.
Pacific Car & Fdy. Co., 4th & Factory St., Renton, Wash.
Pittsburgh-Des Moines Steel Co., 3438 Neville Island, Pittsburgh, Penn.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Truckstell Mfg. Co., 1672 Union Commerce Bldg., Cleveland, Ohio.
Turco Products Inc., 6135 So. Central Ave., Los Angeles 1, Calif.

TANKS, Sand Settling

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Deister Mach. Co., 1933 E. Wayne St., Fort Wayne, Ind. 149
Denver Equipment Co., 1400 17th St., Denver 17, Colo. 146

Eagle Iron Works, 129 Holcomb, Des Moines 4, Iowa 301
Farrel-Birmingham Co., Inc., Ansonia, Conn.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati, Ohio
Lippmann Engr. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
Meckum Engr. Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
Smith Engr. Works, 532 E. Capitol Dr., Milwaukee 12, Wis. 11

TANKS, Storage, Concrete

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
C. S. Johnson, P.O. Box 71, Chicago, Ill.
Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio
Lippmann Engr. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
MacDonald Engr. Co., 188 W. Randolph St., Chicago 1, Ill.
E. C. Machin Co., 624 Commonwealth Bldg., Allentown, Penn.
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
Morrow Mfg. Co., 711 E. 10th St., Wellston, Ohio
The Neff & Fry Co., 150 S. Main St., Camden, Ohio
Noble Co., 1860 7th St., Oakland 7, Calif.
The Nicholson Co., Inc., 10 Rockefeller Plaza, New York 20, N. Y.

TANKS, Storage, Steel

Allen Cone & Mch. Co., 120 Broadway, New York, N. Y.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Car & Foundry Co., 30 Church St., New York 8, N. Y.
American Locomotive Co., 30 Church St., New York 8, N. Y.
Armco Drainage & Metal Products, Inc., 703 Curtis Street, Middletown, Ohio
The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74
C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago 4, Ill.
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kans.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
F. D. Cummer & Sons Co., E. 17th St. & Euclid Ave., Cleveland 15, Ohio
Denver Equipment Co., 1400 17th St., Denver 17, Colo. 146
J. P. Devine Mfg. Co., 909 Shawnee, Mt. Vernon, Ill.
The Elmc Corp., P. O. Box 300, Salt Lake City 8, Utah
The Hell Co., 3000 W. Montana St., Milwaukee 1, Wis.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Henneuse Engr. Co., 400 Monroe St., Marion, Ohio
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio

The C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Avenue Bldg., New York, N. Y. 14, 15
Fred T. Kern Co., Box 2057, Milwaukee, Wis.
The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati, Ohio
Lancaster Iron Wks., Inc., 550 S. Prince St., Lancaster, Penn.
Lippmann Engr. Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
McCartier Iron Wks., Inc., Mill & Washington Sts., Norristown, Penn.
The R. C. Mahon Co., 231 S. La Salle St., Chicago 4, Ill.
McGann Mfg. Co., Inc., Box 1187, York, Penn.
Millville Iron Works, Sixth & Florence Ave., Millville, N. J.
Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
Noble Corp., 1860 7th St., Oakland 7, Calif.
Pacific Car & Fdy. Co., Factory St., Renton, Wash.
Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Penn.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Sedgwick & Stanhope, 15 S. William St., New York 14, N. Y.
Simplicity System Co., Riverside Drive, Chattanooga, Tenn.
Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Struthers Wells Corp., 1003 Pennsylvania Ave. W., Warren, Penn.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Traylor Eng. & Mfg. Co., Allentown, Penn. 7
The Wickes Boiler Co., 515 N. Washington Ave., Saginaw, Mich.
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

TESTING LABORATORIES (See Laboratories)

TESTING EQUIPMENT (Also See Laboratory Apparatus)

Burrell Technical Supply Co., 1936-1942 Fifth Ave., Pittsburgh 19, Penn.
Denver Equipment Co., P.O. Box 5268, Denver 17, Colo. 146
Fisher Scientific Co., 717 Forbes Street, Pittsburgh 19, Penn.
General Electric Co., 1 River Road, Schenectady 5, N. Y.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156
Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
The Mine & Smelter Supply Co., Box 5270, Terminal Annex, Denver 17, Colo.
Morse Bros. Machinery Co., P. O. Box 1708, Denver, Colo.
Newark Wire Cloth Co., 351 Verona Ave., Newark 4, N. J.
Rodgers Hydraulic Inc., 7401 Walker St., Minneapolis 13, Minn.

DIRECTORY

Scientific Concrete Service Corp., 1252 Waverly Pl, Elizabeth 3, N. J.
 Sturtevant Mill Co., 41 Harrison Square, Boston 22, Mass.
 The W. S. Tyler Co., 3615 Superior Ave., Cleveland 14, Ohio 287
 Universal Vibrating Screen Co., Deane Blvd. & St. Paul R.R., Racine, Wis. 159
 Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.
 Wilson Mechanical Instrument Co., Inc., 383 Concord St., New York 54, N. Y.

THERMOCOUPLES, Pyrometers (Also See Pyrometers)

Bailey Meter Co., 1050 Ivanhoe Road, Cleveland 10, Ohio
 The Bristol Co., Waterbury 91, Conn.
 Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia 44, Penn. 50
 Cambridge Instrument Co., Inc., 3010 Grand Central Terminal, New York 17, N. Y.
 Chas. Engelhard, Inc., 90 Passaic Ave., East Newark, N. J.
 Fisher Scientific Co., 717 Forbes Street, Pittsburgh 19, Penn.
 The Foxboro Co., Neponset Ave., Foxboro, Mass.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 J-B-T Instruments, Inc., 441 Chapel St., New Haven, Conn.
 Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
 C. J. Tagliabue Mfg. Co., Park Ave. & Rucks St., Brooklyn, N. Y.
 Simplicity System Co., Riverside Dr., Chattanooga 6, Tenn.
 F. L. Smith & Co., 11 W. 42nd St., New York 17, N. Y. 71
 Tamms Silica Co., 228 N. LaSalle St., Chicago 1, Ill.
 Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

THICKENERS (See Slurry Thickeners)

THIMBLES, Wire Rope

American Cable Div., American Chain & Cable Co., Wilkes-Barre, Penn.
 American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio
 Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65
 Hazard Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn.
 Thomas Laughlin Co., 143 Fore St., Portland 6, Me.
 Macwhyte Co., 2949 14th Ave., Kenosha, Wis.
 Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Mine & Smelter Supply Co., 1422 17th St., Denver, Colo.
 John A. Roebing's Sons Co., 640 S. Broad, Trenton 2, N. J. 17
 U. S. Steel Supply Co., 1319 Wabasha Ave., Chicago, Ill.
 The Upson-Walton Co., Perry Payne Bldg., Cleveland 13, Ohio 8
 Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y. 20

THIRD AXLES (See Motor Truck Drives & Differentials)

TILE, Pipe MACHINES (See Pipe Molds and Machines)

TIRES, Coolers, Dryers, Kilns

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
 Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Penn.
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Electric Steel Fdy., 2141 N.W. 25th Ave., Portland 10, Ore.
 Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave. Bldg., New York, N. Y. 15
 Lewistown Foundry & Machine Co., 16 Elizabeth, Lewistown, Penn.
 Lukens Steel Co., Coatesville, Penn.
 Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.
 F. L. Smith & Co., 11 W. 42nd St., New York 18, N. Y. 71
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
 Stroh Process Steel Co., 1428 High St., Pittsburgh 12, Penn.
 Traylor Eng. & Mfg. Co., Tenth and Mill Sts., Allentown, Penn. 7
 Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Penn.

TIRES AND TUBES (Heavy-Duty Industrial)

The Dayton Rubber Mfg. Co., P.O. Box 1004, Dayton 1, Ohio
 Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron 17, Ohio 37
 Fiske Bros. Refining Co., 129 Lockwood St., Newark, N. J.
 Gates Rubber Co., 999 South Broadway, Denver 17, Colo. 30
 The General Tire & Rubber Co., Akron, Ohio
 The B. F. Goodrich Co., Akron, Ohio 3
 The Goodyear Tire & Rubber Co., 1144 E. Market, Akron, Ohio 9
 Selberling Rubber Co., Akron, Ohio
 U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y.

TORCHES (Cutting & Welding) (See Welding & Cutting Equipment)

TOWERS, Structural Steel

American Bridge Co., Frick Bldg., Pittsburgh, Penn.
 American Car & Foundry Co., 30 Church St., New York 8, N. Y.
 American Steel Dredge Co., Inc., 2511 W. Taylor St., Ft. Wayne, Ind.
 Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65
 Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Dravo Corp., Neville Island, Pittsburgh 25, Penn.
 Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
 Fred T. Kern Co., Box 2057, Milwaukee, Wis.

The R. C. Mahon Co., 231 S. LaSalle St., Chicago 4, Ill.
 Minneapolis - Moline Power Implement Co., Box 1050, Minneapolis, Minn.
 Pacific Car & Fdry. Co., Factory St., Renton, Wash.
 Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Penn.
 H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.
 Robins Conveyors Inc., (Div. Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J. 56
 Stearns-Roger Mfg. Co., 1718-22 California St., Denver 2, Colo.
 Superior Metal Prod. Co., Inc., 1819 S. Branson St., Marion, Ind.

TRACK AND TRACK EQUIPMENT

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
 Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65
 The Buda Co., 15401 Commercial Ave., Harvey, Ill.
 Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
 Central Frog & Switch Co., Station O, Box 9, Cincinnati, Ohio
 Chase Fdry. & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
 Easton Car & Construction Co., Box 270 Easton, Penn.
 L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Penn.
 Helmick Foundry-Machine Co., Lock Drawer 71, Fairmont, W. Va.
 Henneuse Engineering Co., 400 Monroe St., Marion, Ohio
 Midwest Steel Corp., P. O. Box 271 Charleston, W. Va.
 Morse Machinery Co., 2900 Broadway, Denver 1, Colo.
 National Malleable & Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio
 Nordberg Mfg. Co., 2083 S. Chase Ave., Milwaukee 7, Wis. 22
 Pacific Car & Fdy. Co., Factory St., Renton, Wash.
 Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
 Pressed Steel Car Co., 2500 Koppers Bldg., Pittsburgh 30, Penn.
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
 The Woodford Engr. Co., 77 W. Washington St., Chicago 2, Ill.

TRACK SHIFTERS

The Buda Co., 15401 Commercial Ave., Harvey, Ill.
 Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill.
 Clyde Iron Works Inc., 29th Ave W. & Michigan St., Duluth 1, Minn.
 Nordberg Mfg. Co., 2083 S. Chase Ave., Milwaukee 7, Wis. 22
 Templeton, Kenly & Co., 1020 S. Central Ave., Chicago 44, Ill.

TRACTORS, Electric

Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
 The Baker-Raulang Co., 2168 W. 25th St., Cleveland 13, Ohio
 Detroit Holst & Machine Co., 8214 Morrow Ave., Detroit 11, Mich.

The Elwell Parker Elec. Co., 4205 St. Clair Ave., Cleveland, Ohio
 Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio
 The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

TRACTORS, Gasoline, Diesel

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49
 Allis-Chalmers Mfg. Co., Tractor Div., Main Office, Milwaukee 1, Wis. 13
 Caterpillar Tractor Co., Peoria 8, Ill. 41
 Clark Tractor Div. Clark Equipment Co., Battle Creek, Mich.
 Continental Motors Corp., Detroit, Mich.
 Four Wheel Drive Auto Co., Clintonville, Wis.
 The Hell Co., 3000 W. Montana St., Milwaukee 1, Wis.
 Henneuse Engineering Co., 400 Monroe St., Marion, Ohio
 International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill. 23
 Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y. 32
 Marmon-Herrington Co., 1511 W. Washington St., Indianapolis, Ind.
 Minneapolis - Moline Power Implement Co., Box 1015, Minneapolis 1, Minn.
 The Oliver Corp., Industrial Div., 19300 Euclid Ave., Cleveland 17, Ohio
 The Oliver Corp., 400 W. Madison St., Chicago 6, Ill.
 R. H. Sheppard Co., Philadelphia St., Hanover, Penn.
 R. G. Le Tourneau, Inc., 2301 North Adams, Peoria 3, Ill.
 Towmotor Corp., 1228 E. 152nd St., Cleveland 10, Ohio
 Walter Motor Truck Co., 1001-19 Irving Ave., Ridgewood, Brooklyn, N. Y.

TRAILER BODIES (See Bodies)

TRAILER BODIES, Bulk Cement

Butler Bldg Co., Box 407, Waukesha, Wis.
 Fruehauf Trailer Co., 10940 Harper Ave., Detroit 32, Mich.
 Gar Wood Industries, Inc., 7924 Niopelle St., Detroit 11, Mich.
 The Marion Metal Products Co., Cheney St., Marion, Ohio

TRAILERS & SEMI-TRAILERS, Motor Truck

Athey Products Corp., 5631 West 65th St., Chicago 38, Ill.
 Atlas Car & Mfg. Co., 1140 Ivanhoe Rd., Cleveland, Ohio
 Austin-Western Co., Aurora, Ill.
 Dart Truck Co., 2628 Oak Sts., Kansas City, Mo.
 Easton Car & Construction Co., Box 270, Easton, Penn.
 Euclid Road Mch. Co., 1361 Chardon Rd., Cleveland, Ohio
 Ford Motor Co., 3574 Schaefer Rd., Dearborn, Mich. 18
 Four Wheel Drive Auto Co., Clintonville, Wis.
 Fruehauf Trailer Co., 10940 Harper Ave., Detroit 32, Mich.
 Gar Wood Industries, Inc., 924 Riopelle St., Detroit, Mich.
 Hanson Clutch & Mch. Co., Wall & Miami St., Tiffin 15, Ohio
 The Hell Co., 3000 W. Montana, Milwaukee, Wis.

DIRECTORY

M-R-S Mfg. Co., P. O. Box 1206—1940 N. Mill Rd., Jackson 110, Miss.
 Pacific Car & Fdy. Co., Factory St., Renton, Wash.
 Sanford-Day Iron Wks., Inc., Dale Ave., Knoxville, Tenn.
 Southwest Welding & Mfg. Co., 3201 W. Mission Rd., Alhambra, Calif.
 Truck Engr. Corp., 1285 W. 70th St., Cleveland 2, Ohio
 Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo, N. Y.

TRAMWAYS, Aerial (See Aerial Tramways)

TRANSFER PLANTS, Ready-Mixed Concrete

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
 Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.

TRANSFORMERS, Electric (See Electrical Equipment)

TRANSIT CONCRETE MIXING PLANTS (See also Batching Plants)

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Butler Bin Co., Waukesha, Wis.
 Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
 The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
 Erie Steel Construction Co., 19th & Geist Rd., Erie, Penn. 192
 Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Madsen Iron Wks., 5631 Blackett St., Huntington Park, Calif.
 Noble Corp., 1860 7th St., Oakland 7, Calif.
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.

TRANSMISSION MACHINERY (See Gears, Etc.)

TRANSPORT SYSTEMS, Air (See Air Conveyors)

TREADS, STAIR

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
 Boston Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.
 Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kans.
 Dravo Corp., Neville Island, Pittsburgh 25, Penn.
 The B. F. Goodrich Co., Akron, Ohio 3
 Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn. 156

Kirk & Blum Mfg. Co., 3807 Spring Grove Ave., Cincinnati 25, Ohio.
 Lukens Steel Co., Coatesville, Penn.
 Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn. 12
 Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill. 6
 Southern Friction Materials Co., Box 1475, Charlotte 1, N. C.
 Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
 U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y.

TRENCHING MACHINES

Barber-Greene Co., 631 W. Park Ave., Aurora, Ill. 16
 Bay City Shovels, Inc., 2611 Center Ave., Bay City, Mich.
 Buckeye Traction Ditcher Co., Crystal St., Findlay, Ohio
 Bucyrus-Erie Co., P. O. Box 56, So. Milwaukee, Wis. 4th Cover
 The Byers Machine Co., Lock Box 390, Ravenna, Ohio
 Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 158
 Hyster Co., 2902 N.E. Clackamas St., Portland, Ore.
 Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
 Keystone Driller Co., 2001-21 8th Ave., Beaver Falls, Penn.
 The Osgood Co., Marion, Ohio 62
 Unit Crane & Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis. 29

TRIPPERS, Belt (See Conveyor Belt Trippers)

TROLLEYS, I-Beam

Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
 Chisholm-Moore Hoist Corp., Tonawanda, N. Y.
 Conco Engineering Works, Div. of H. D. Conkey Co., 1501 W. Washington Rd., Mendota 1, Ill.
 The Cleveland Crane & Engr. Co., Wickliffe, Ohio.
 Coffing Hoist Co., Danville, Ill.
 Curtis Pneumatic Machinery Co., 1988 Kienlen Ave., St. Louis, Mo.
 Ford Chain Block Div., American Chain & Cable Co., 2nd & Diamond Sts., Philadelphia 25, Penn. 3rd Cov.
 The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
 Loudon Mch. Co., 1119 Broadway, Fairfield, Iowa
 Southwestern Eng. Co., 4800 Santa Fe Ave., Los Angeles 11, Calif.
 Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill. 6
 Whiting Corp., 157th & Lathrop Ave., Harvey, Ill.
 Wright Mfg. Div., American Chain & Cable Co., York, Penn. 3rd Cover
 The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

TROLLEYS, Mine

Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

TRUCK BODIES

(See Bodies)

TRUCK BODIES, Concrete Mixing, Agitating (See also Bodies, Concrete Mixer Truck)

Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
 Commercial Concrete Equipment Co., 1 Wolf's Lane, Pelham 65, N. Y.
 Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo. 191
 Conserco Co., P. O. Box 4056, Chevy Chase, Md.
 Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37
 Ransome Concrete Machinery Co., Dunellen, N. J.
 T. L. Smith Co., 2835 N. 32nd St., Milwaukee, Wis. 167
 Spears-Wells Mch. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.

TRUCKS, Dump (See Motor Trucks)

TRUCKS, Electric

Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill.
 The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
 The Baker-Raulang Co., 2168 W. 25th St., Cleveland 13, Ohio
 Barrett-Cravens Co., 3255 W. 30th St., Chicago 23, Ill.
 Clark Tractor Div., Clark Equipment Co., Battle Creek, Mich.
 Easton Car & Construction Co., Box 270, Easton, Penn.
 The Elwell Parker Elec. Co., 4205 St. Clair Ave., Cleveland 14, Ohio
 Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio
 The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

TRUCKS, Hand

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
 Barrett-Cravens Co., 3255 W. 30th St., Chicago 23, Ill.
 The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 Drinkwater, Inc., 2323 S. Michigan Ave., Chicago 16, Ill.
 The Erickson Special Equipment Co., 2631 Ulysses N. E., Minneapolis, Minn. 196
 Howe Scale Co., Rutland, Vt.
 Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio
 Service Caster & Truck Corp., 110 S. Superior St., Albion, Mich.
 A. Streich & Bro. Co., 318 Eighth St., Oshkosh, Wis.
 The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

TRUCKS, Industrial

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio.
 Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill.

The Baker Raulang Co., 2168 W. 25th St., Cleveland 13, Ohio
 Barrett-Cravens Co., 3255 W. 30th St., Chicago 23, Ill.
 Bethlehem Steel Co., 701 E. 3rd St., Bethlehem, Penn. 65
 Buda Co., 15401 Commercial Ave., Harvey, Ill.
 Clark Tractor Div., Clark Equipment Co., Battle Creek, Mich.
 The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
 Drinkwater, Inc., 2323 S. Michigan Ave., Chicago 16, Ill.
 Easton Car & Construction Co., Box 270, Easton, Penn.
 The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah
 Electric Wheel Co., 28th & Cedar Sts., Quincy, Ill.
 The Elwell Parker Elec. Co., 4205 St. Clair Ave., Cleveland 14, Ohio
 Erickson Special Equipment Mfg. Co., 1401 Marshall St., N. E. Minneapolis 13, Minn. 196
 The Fate - Root - Heath Co., 607 Bell St., Plymouth, Ohio 142
 Gar-Bro Mfg. Co., Div. of Garlinghouse Bros. Mfg. Co., 2416 E. 16th St., Los Angeles 21, Calif.
 Helmick Foundry - Machine Co., Lock Drawer 71, Fairmont, W. Va.
 Howe Scale Co., Rutland, Vt.
 Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
 International Engr. Inc., 1145 Bolander, Dayton 1, Ohio
 Lewis-Shepard Sales Corp., 117 Walnut St., Watertown, Mass.
 Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio
 Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Penn.
 Pulmosan Safety Equipment Corp., 176 Johnson St., Brooklyn 1, N. Y.
 Salisbury Motors, Inc., 1201 Lexington, Pomona, Calif.
 Service Caster & Truck Corp., 110 S. Superior St., Albion, Mich.
 A. Streich & Bro. Co., 318 Eighth St., Oshkosh, Wis.
 Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio
 Truck-Man, Inc., 1410 W. Ganson, Jackson, Mich. 186
 The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

TRUCKS, Lift

The Atlas Car & Mfg. Co., 1100 Ivanhoe Road, Cleveland 10, Ohio
 The Baker-Raulang Co., 2168 W. 25th St., Cleveland 13, Ohio
 Barrett-Cravens Co., 3255 W. 30th St., Chicago 23, Ill.
 Clark Tractor Div. Clark Equipment Co., Battle Creek, Mich.
 Easton Car & Construction Co., Box 270, Easton, Penn.
 The Elwell-Parker Elec. Co., 4205 St. Clair Ave., Cleveland 14, Ohio
 Erickson Special Equipment Mfg. Co., 1401 Marshall St., N.E., Minneapolis 13, Minn. 196
 Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
 Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio
 Multiplex Concrete Machy. Co., Elmore, Ohio 163
 Ross Carrier Co., 250 Miller St., Benton Harbor, Mich.

DIRECTORY

Salsbury Motors, Inc., 1201 Lexington, Pomona, Calif.
Service Caster & Truck Corp., 110 S. Superior St., Albion, Mich.
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Stearns Mfg. Co., Inc., Adrian, Mich.
Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio
Truck-Man, Inc., 1410 W. Ganson, Jackson, Mich. 186
The Yale & Towne Mfg. Co., 4530 Tacony Street, Philadelphia 24, Penn.

TRUCKS, Mixer Body
(See Bodies, Concrete Mixer Truck)

TRUCKS, Motor
(See Motor Trucks)

TRUCKS, Tractor

Chase Fdy. & Machine Co., Columbus 7, Ohio 194
Dart Truck Co., 27th & Oak Sts., Kansas City, Mo.
The Elwell Parker Elec. Co., 4205 St. Clair Ave., Cleveland, Ohio
The Euclid Road Machinery Co., 1361 Chardon Road, Cleveland, Ohio
Four Wheel Drive Auto Co., Clintonville, Wis.
Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y. 32
Marmon-Herrington Co., 1511 W. Washington St., Indianapolis 8, Ind.
Oshkosh Motor Truck, Inc., 2302 Oregon St., Oshkosh, Wis.
Salsbury Motors, Inc., 1201 Lexington, Pomona, Calif.
Sterling Motor Truck Co., Inc., 2021 S. 54th St., Milwaukee, Wis.
The Truckstell Co., 1672 Union Commerce Bldg., Cleveland, Ohio
Ward LaFrance Truck Div., Great American Industries, Inc., Elmira, N. Y.
Yale & Towne Mfg. Co., Philadelphia Div., 4530 Tacony Ave., Philadelphia 24, Penn.

TURBINES, Steam

Allis-Chalmers Co., Milwaukee 1, Wis. 53
Coppus Engineering Corp., 344 Park Ave., Worcester 2, Mass.
DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
Joshua Hendy Iron Wks., Box 37, Sunnyvale, Calif.
Moore Steam Turbine Co., Willsville, N. Y.
Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
Worthington Pump & Mch. Corp., Harrison, N. J.

TURBINES, Water

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 53
Dean Hill Pump Co., Anderson, Ind.
DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.
Westinghouse Elec. & Mfg. Co., Hill St., E. Pittsburgh, Penn.

TURNTABLES, Track

American Car & Foundry Co., 30 Church St., New York 8, N. Y.
The Atlas Car & Mfg. Co., 1100 Ivanhoe Road, Cleveland 10, Ohio
Bethlehem Steel Co., Bethlehem, Penn. 65
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio 194
L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Penn.
Hardinge Co., Inc., 240 Arch St., York, Penn. 147
International Eng. Inc., 1145 Bolander, Dayton, Ohio
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Penn.
W. A. Riddell Corp., 201 E. Warren, Bucyrus, Ohio
Sanford-Day Iron Wks., Inc., Dale Ave., Knoxville, Tenn.
Stearns Mfg. Co., Inc., Adrian, Mich.
Whiting Corp., 157th St. & Lathrop Ave., Harvey, Ill.

UNLOADERS, Boat

The Elmco Corp., P. O. Box 300, Salt Lake City, Utah
Fuller Co., Fuller Bldg., Catasauqua, Penn. 24, 25
Hewitt Rubber of Buffalo Div. of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63
Lima Locomotive Wks., Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio
Link-Belt Co., 2045 W. Huntington Park Ave., Philadelphia 40, Penn. 1
Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Wellman Eng. Co., 7000 Central Ave., Cleveland 4, Ohio 457
Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

UNLOADERS, Box Car

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Barber Greene Co., 631 W. Park Ave., Aurora, Ill. 16
C. O. Bartlett & Snow Co., 6194 Harvard Ave., Cleveland, Ohio
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.
Diamond Iron Works, Inc. & The Mahr Mfg. Co., Div., 1800 N. 2nd St., Minneapolis 11, Minn.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kans. 158
The Elmco Corp., P. O. Box 300, Salt Lake City, Utah
Fairfield Eng. Co., 305 Barnhart St., Marion, Ohio
Hewitt Rubber of Buffalo Div. of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56

The Frank G. Hough Co., E. Sunnyside Ave., Libertyville, Ill.

Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio 37

C. S. Johnson, P.O. Box 71, Champaign, Ill.

Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn. 1

Noble Co., 1860 7th St., Oakland 7, Calif.

Sprout, Waldron, Muncy, Penn.

Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Webster Mfg., Inc., Tiffin, Ohio

Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Penn.

UNLOADERS, Pneumatic

Draceo Corp., 4043 E. 116th St., Cleveland, Ohio

Fuller Co., Fuller Bldg., Catasauqua, Penn. 24, 25

Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore.

VACUUM CLEANING SYSTEMS

Markley Dust Control System, Inc., 431 Fayette Ave., Mamaroneck, N. Y.

The Spencer Turbine Co., 486 New Park Ave., Hartford 6, Conn.

U. S. Hoffman Machinery Corp., 105 Fourth Ave., New York 3, N. Y.

VALVES, Air

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74

The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland, Ohio

R. Conrader Co., 1209 French St., Erie 2, Penn.

Curtis Pneumatic Mch., Div. of Curtis Mfg. Co., 1905 Klenlen Ave., St. Louis 20, Mo.

Dixon Valve & Coupling Co., Hancock St., Columbia Avenue, Philadelphia 22, Penn.

Hills-McCanna Co., 2349 Nelson St., Chicago 18, Ill.

Jenkins Bros., 80 White St., New York 13, N. Y.

Knox Mfg. Co., 811 Cherry St., Philadelphia 7, Penn.

Merco Nordstrom Valve Co., 400 N. Lexington Ave., Pittsburgh, Penn.

New Haven Vibrator Co., Inc., 145 Chestnut St., New Haven 7, Conn. 160

Reading-Pratt & Cady Div., Amer. Chain & Cable Co., Inc., Reading, Penn. 3rd Cover

Rucker-Vaughn Co., 4228 Hollis St., Oakland 8, Calif.

Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

Worthington Pump & Mfg. Corp., 37 Appleton St., Holyoke, Mass.

VALVES, Automatic

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y. 74

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, Ohio

Bristol Co., Waterbury 91, Conn.

d'Este Div., American Chain & Cable Co., Inc., Reading, Penn. 3rd Cover
Economy Pumps, Inc., 1000 Weller Ave., Hamilton, Ohio

The Foxboro Co., Neponset Ave., Foxboro, Mass.

Fuller Co., Fuller Bldg., Catasauqua, Penn. 24, 25

Hills-McCanna Co., 2349 Nelson St., Chicago 18, Ill.

Noble Co., 1860 7th St., Oakland 7, Calif.

Reading-Pratt & Cady Div., Amer. Chain & Cable Co., Inc., Reading, Penn. 3rd Cover

Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.

Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.

Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

VALVES, Bin

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Penn. 160

Butler Bin Co., Box 407, Waukesha, Wis.

Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.

The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

Farrel-Birmingham, Ansonia, Conn.

Fuller Co., Fuller Bldg., Catasauqua, Penn. 24, 25

Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, Ohio

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63

The C. S. Johnson Co., P.O. Box 71, Champaign, Ill.

Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.

Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill. 1

Noble Co., 1860 7th St., Oakland 7, Calif.

The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, Ohio 135

Sprout, Waldron, Muncy, Penn.

Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Webster Mfg., Inc., Tiffin, Ohio

Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

VALVES, Pulverized Material

The Babcock & Wilcox Co., 85 Liberty St., New York, N. Y. 74

Beaumont Blrch Co., 1505 Race St., Philadelphia 2, Penn.

The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

Fuller Co., Fuller Bldg., Catasauqua, Penn. 24, 25

Hills-McCanna Co., 2349 Nelson St., Chicago 18, Ill.

The C. S. Johnson Co., P.O. Box 71, Champaign, Ill.

Kennedy-Van Saun Mfg. & Engr. Corp., 2 Park Ave., New York 16, N. Y. 14, 15

Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.

Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill. 1

The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Annex, Denver 17, Colo.

DIRECTORY

Raymond Pulverizer Div.,
Combustion Engr. Co., Inc.,
1319 N. Branch St., Chi-
cago, Ill. 63
Reading-Pratt & Cady Div.,
American Chain & Cable
Co., Inc., Reading, Penn.
3rd Cover
C. M. Schaeffer Valve Co.,
Allentown, Penn.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Western Precipitation Corp.,
1016 W. 9th St., Los An-
geles 15, Calif.
Whiting Corp., 157th St. &
Lathrope Ave., Harvey, Ill.

VALVES, Slurry

Electric Steel Fdy. Co., 2141
N.W. 25th Ave., Portland
10, Ore.
Fuller Co., Fuller Bldg.,
Catasauqua, Penn. 25
Hills - McCanna Co., 2349
Nelson St., Chicago 18, Ill.
Meckum Engr., Inc., 53 W.
Jackson Blvd., Chicago 4,
Ill.
Merco Nordstrom Valve Co.,
400 N. Lexington Ave.,
Pittsburgh, Penn.
The Mine & Smelter Supply
Co., Box 5270, Terminal Sta-
tion, Denver 17, Colo.
F. L. Smith & Co., 11 W.
42nd St., New York 18,
N. Y. 68, 71

VALVES, Water

Albert Pipe Supply Co., Inc.,
Berry N. 13th St., Brook-
lyn 11, N. Y.
The Cleveland Rock Drill
Co., 3781 E. 77th St.,
Cleveland 5, Ohio
Dixon Valve & Coupling Co.,
Hancock St. & Columbia
Ave., Philadelphia, Penn.
Economy Pumps, Inc., 1000
Weiler Ave., Hamilton,
Ohio
Electric Steel Fdy. Co., 2141
N. W. 25th Ave., Portland
10, Ore.
Hills - McCanna Co., 2349
Nelson St., Chicago 18, Ill.
Jenkins Bros., 80 White St.,
New York 13, N. Y.
Knox Mfg. Co., 811-823
Cherry St., Philadelphia,
Penn.
Manning, Maxwell & Moore
Inc., 11 Elias St., Bridge-
port 2, Conn.
Merco Nordstrom Valve Co.,
400 N. Lexington Ave.,
Pittsburgh, Penn.
Morse Bros. Mch. Co., 2900
Broadway Denver 1, Colo.
Reading-Pratt & Cady Div.,
Amer. Chain & Cable Co.,
Inc., Reading, Penn. 3rd Cover
Rucker-Vaughn Co., 4228 Hol-
lis St., Oakland 8, Calif.
U. S. Rubber Co., 1230 6th
Ave., New York 20, N. Y.
Victor Balata & Textile
Belting Co., 53 Park Pl.,
New York 7, N. Y.
Wheelco Instruments Co., 847
W. Harrison St., Chicago 7,
Ill.
R. D. Wood Co., Public Ledg-
er Bldg., Independence Sq.,
Philadelphia 5, Penn.

VIBRATING SCREENS (See Screens, Vibrating)

VIBRATORS for Chutes, Bins, etc.

Ajax Flexible Coupling Co.,
Inc., 116 Portage Rd.,
Westfield, N. Y.
Ashland Vault Inc., 114 7th
St., Ashland, Ohio
Cement Mill Equip. Co.,
9718 Otsego Ave., Detroit,
Mich.

Hardinge Co., Inc., 240 Arch
St., York, Penn. 147
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
New Haven Vibrator Co., 131
Chestnut St., New Haven
7, Conn. 160
Separations Eng. Corp., 110
E. 42nd St., New York 17,
N. Y.
Sutton, Steele & Steele, Inc.,
1031 S. Haskell, Dallas 10,
Texas
Syntron Co., 450 Lexington
Ave., Homer City, Penn. 150
The W. S. Tyler Co., 3615
Superior St., Cleveland 14,
Ohio 287

VIBRATORS, Concrete Block

Besser Mfg. Co., Alpena,
Mich. 170, 183
Concrete Transport Mixer
Co., 650 Rosedale Ave., St.
Louis 12, Mo. 191
Fleming Mfg. Co., Inc., 4985
Fyler Ave., St. Louis 9,
Mo. 190
B o b Graveley Industries,
Inc., 519 Brookhaven Dr.,
Orlando, Fla. 165
Multiplex Concrete Machin-
ery Co., Elmore, Ohio 163
New Haven Vibrator Co., 131
Chestnut St., New Haven
7, Conn. 160
Stearns Mfg. Co., Inc., Ad-
rian, Mich.
Syntron Co., 450 Lexington
Ave., Homer City, Penn. 150

VIBRATORS, Portable, Con- crete

Chicago Pneumatic Tool Co.,
6 E. 44th St., New York
17, N. Y. 44
Concrete Transport Mixer
Co., 650 Rosedale Ave., St.
Louis 12, Mo. 191
Independent Pneumatic Tool
Co., 600 W. Jackson Blvd.,
Chicago 6, Ill.
Ingersoll - Rand Co., 11
Broadway, New York 4,
N. Y.
Kadco Corp., 36-40 Eleventh
St., Long Island City, N.
Y. (Subsidiary of Complete
Machy. & Equipment Co.)
Mall Tool Co., 7728 S. Chi-
cago Ave., Chicago, Ill.
New Haven Vibrator Co., 131
Chestnut St., New Haven
7, Conn. 160
Stow Mfg. Co., Inc., 443
State St., Binghamton,
N. Y.
Syntron Co., 450 Lexington
Ave., Homer City, Penn. 150
Viber Company, 726 S.
Flower St., Burbank,
Calif.

VOLTMETERS (See Electrical Instru- ments)

WAGONS, Dump

Athey Products Corp., 5631
W. 65th St., Chicago 38,
Ill.
Austin - Western Co., 601
Farnsworth Ave., Aurora,
Ill.
Caterpillar Tractor Co., Pe-
oria 8, Ill. 41
Chase Foundry & Mfg. Co.,
2400 Parsons Ave., Colum-
bus 7, Ohio 194
Euclid Road Machinery Co.,
1361 Chardon Rd., Cleve-
land, Ohio
The Hell Co., 300 W. Mon-
tana, Milwaukee, Wis.
Insley Mfg. Co., 801 N. Ol-
ney, Indianapolis, Ind.
Koehring Co., 30th & Con-
cordia Avenue, Milwaukee,
Wis.

LaPlant-Choate Mfg. Co.,
Inc., 2900 1st Ave., N.E.,
Cedar Rapids, Ia. 46
R. G. LeTourneau, Inc., 2301
North Adams, Peoria 3, Ill.
M-R-S Mfg. Co., P. O. Box
1206, 1940 N. Mill Road,
Jackson, Miss.
Southwest Welding & Mfg.
Co., 3201 W. Mission Rd.,
Alhambra, Calif.
A. Strelch & Bro. Co., 318
Eighth St., Oshkosh, Wis.
Trackson Co., 3333 S. Chase
Ave., Milwaukee 1, Wis. 40

WALL FORMS & MACHINES, Concrete

Kirk & Blum Mfg. Co., 2807
Spring Grove Ave., Cincin-
nati 28, Ohio
Metal Forms Corp., 3334 N.
Booth St., Milwaukee, Wis.
Wilson System of Prefabri-
cation, 253 S. Hoover St.,
Los Angeles 4, Calif.

WASH FOUNTAINS AND SHOWERS

Bradley Washfountain Co.,
2203 N. Michigan St., Mil-
waukee, Wis.

WASHING MACHINES, Sand, Gravel, Stone (See Screens, Scrubbers)

WATERPROOFING & DAMP- PROOFING, Concrete

American Fluoresit Co., Inc.,
635 Rockdale, Cincinnati
29, Ohio
The Dodson Mfg. Co., Inc.,
1463 Barwise Ave., Wich-
ita 2, Kans. 160
The Goodyear Tire & Rubber
Co., Inc., 144 E. Market,
Akron, Ohio 3
Haynes Products Co., 4007
Farnam St., Omaha, Neb.
Johns - Manville, 22 E. 40th
St., New York 16, N. Y.
Master Builders Co., 7016
Euclid Ave., Cleveland 3,
Ohio
Prima Products, Inc., 10 E.
40th St., New York 16,
N. Y. 185
Prufcoat Laboratories, Inc.,
63 Main St., Cambridge
42, Mass.
Reardon Industries, 2837
Stanton Ave., Cincinnati 6,
Ohio
Sackrete Inc., Apple St. &
Vandalla, Cincinnati, Ohio
Sika Chemical Corp., 35
Gregory Ave., Passaic,
N. J.
Solvay Sales Corp., 40 Rector
St., New York 6, N. Y.
L. Sonneborn Sons, Inc.,
88 Lexington Ave., New
York 16, N. Y.
Standard Oil Co. of Califor-
nia, 225 Bush St., San
Francisco 20, Calif. 43
Tamms Silica Co., 228 N. La
Salle St., Chicago, Ill.
Truscon Laboratories, Inc.,
Caniff & Grand Trunk R.
R., Detroit 11, Mich.
U. S. Rubber Co., 1230 6th
Ave., New York 20, N. Y.

WEIGH LARRIES

The Atlas Car & Mfg. Co.,
1100 Ivanhoe Rd., Cleve-
land 10, Ohio
The C. O. Bartlett & Snow
Co., 6200 Harvard Ave.,
Cleveland 5, Ohio
Beaumont Birch Co., 1512
Race St., Philadelphia 2,
Penn.
Butler Bin Co., Waukesha,
Wis.
Chain Belt Co., 1649 W. Bruce
St., Milwaukee, Wis.

Continental Gin Co., Indus-
trial Div., 4500 - 5th Ave.,
Birmingham, Ala. 136
Erie Steel Construction Co.,
19th & Geist Rd., Erie,
Penn. 192
Gifford - Wood Co., Hudson,
N. Y.
Heltzel Steel Form & Iron
Co., 1750 Thomas Rd.,
Warren, Ohio
Jackson & Church Co., 321
N. Hamilton St., Saginaw,
Mich.
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
C. S. Johnson Co., P.O. Box
71, Champaign, Ill.
Kron Co., 1720 Fairfield Ave.,
Bridgeport 5, Conn.
Link-Belt Co., 320 W. Per-
shing Rd., Chicago 9, Ill. 1
Richardson Scale Co., Clif-
ton, N. J.
Robins Conveyors, Inc. (Div.
Hewitt Robins Inc.), 270
Passaic Ave., Passaic, N. J. 56
Stearns Mfg. Co., Inc., Adrian,
Mich.
Stephens-Adamson Mfg. Co.,
7 Ridgeway Ave., Aurora,
Ill.
Vulcan Iron Works, 730 S.
Main St., Wilkes - Barre,
Penn.
Webster Mfg., Inc., Tiffin,
Ohio
Wellman Engr. Co., 7000
Central Ave., Cleveland 4,
Ohio 157
The Yale & Towne Mfg. Co.,
4530 Tacony St., Philadel-
phia, Penn.

WEIGH NG EQUIPMENT

Anchor Concrete Mch. Co.,
1191 Fairview Ave., Colum-
bus 8, Ohio 164
Atlas Car & Mfg. Co., 1100
Ivanhoe Rd., Cleveland 10,
Ohio
Beaumont Birch Co., 1505
Race St., Philadelphia 2,
Penn.
Blaw-Knox Co., Farmers
Bank Bldg., Pittsburgh
22, Penn. 160
Bonded Scale Co., 41 Bell-
view Ave., Columbus 7,
Ohio 189
Builders-Providence, Inc., 9
Coddling St., Providence 1,
R. I.
Butler Bin Co., Waukesha,
Wis.
The Conveyor Co., Inc., 3260
E. Slauson Ave., Los An-
geles 11, Calif.
Erie Steel Construction Co.,
Erie & Geist Rd., Erie,
Penn. 192
Fairbanks, Morse & Co., 600
S. Michigan Ave., Chicago
5, Ill.
Gar Wood Industries, Inc.,
7924 Riopelle St., Detroit
11, Mich.
Gar-Bro Mfg. Co., Div. of
Garlinghouse Bros., 2416
E. 16th St., Los Angeles
21, Calif.
C. S. Johnson Co., P. O. Box
71, Champaign, Ill. 147
Hardinge Co., Inc., 240 Arch
St., York, Penn.
Heltzel Steel Form & Iron
Co., 1750 Thomas Rd.,
Warren, Ohio
Howe Scale Co., 127 Strongs
Ave., Rutland, Vt.
The Jeffrey Mfg. Co., 935-99
N. 4th St., Columbus 16,
Ohio 63
Kennedy - Van Saun Mfg. &
Engr. Co., 2 Park Ave.,
New York, N. Y. 15
Kron Co., 1720 Fairfield Ave.,
Bridgeport 5, Conn.
Lime & Hydrate Plants Co.,
P. O. Box 1387, York,
Penn.

DIRECTORY

Merrick Scale Mfg. Co., 180 Autumn St., Passaic, N. J. 155
 Richardson Scale Co., Clifton, N. J.
 Schaffer Poldometer Co., 2838 Smallman St., Pittsburgh, Penn.
 Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.
 Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles, 11, Calif.
 Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Syntrol Co., 450 Lexington Ave., Homer City, Penn. 150
 Toledo Scale Co., Telegraph Rd., Toledo 12, Ohio
 Yale & Towne Mfg. Co., Philadelphia Div., 4530 Tacony St., Philadelphia 24, Penn.

WEIGHT RECORDERS

Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
 Bonded Scale Co., 2176 S. Third St., Columbus 7, Ohio 189
 Builders - Providence Inc., 9 Coddling St., Providence 1, R. I.
 Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
 Hardinge Co., Inc., 240 Arch St., York, Penn. 147
 C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
 Merrick Scale Mfg. Co., 180 Autumn St., Passaic, N. J. 155
 Scientific Concrete Service Corp., 1252 Waverly pl., Elizabeth 3, N. J.
 Yale & Towne Mfg. Co., Philadelphia Div., 4530 Tacony St., Philadelphia 24, Penn.

WELDERS' PROTECTIVE EQUIPMENT

Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Boyer-Campbell Co., 6540 Antoine St., Detroit 2, Mich.
 E. D. Bullard Co., 275-Sth St., San Francisco 3, Calif.
 Davis Emergency Equipment Co., Inc., 45 Halleck St., Newark 4, N. J.
 Firestone Tire & Rubber Co., 1200 Firestone Pkwy., Akron 17, Ohio 39
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 The B. F. Goodrich Co., Akron, Ohio 3
 Hobart Brothers Co., Hobart Square, Troy, Ohio
 The Industrial Products Co., 2705 N. Fourth St., Philadelphia 33, Penn.
 Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio
 Mine Safety Appliances Co., Braddock, Thomas & Meade St., Pittsburgh 8, Penn.
 U. S. Steel Supply Co., 1319 Wabansia Ave., Chicago, Ill.
 Universal Power Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.
 Willson Products, Inc., 2nd & Washington Sts., Reading, Penn.

WELDING CABLE

Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio
 Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.
 General Cable Corp., 420 Lexington Ave., New York 17, N. Y.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Hobart Brothers Co., Hobart Square, Troy, Ohio
 Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio
 Okonite Co., Passaic, N. J.
 John A. Roebling's Sons Co., 640 S. Broad, Trenton 2, N. J. 17
 U. S. Rubber Co., 1260 6th Ave., New York 20, N. Y.
 Universal Power Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Westinghouse Electric & Mfg. Co., E. Pittsburgh, Penn.

WELDING CARBON

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Hobart Brothers Co., Hobart Square, Troy, Ohio
 Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio
 National Carbon Co., Inc., 30 East 42nd St., New York 17, N. Y.
 Universal Power Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Wall - Colmonoy Corp., 720 Fisher Bldg., Detroit 2, Mich.

WELDING & CUTTING EQUIPMENT

Air Reduction Sales Co., 60 E. 42nd St., New York City 17, N. Y.
 Albert & J. M. Anderson Mfg. Co., 291 A Street, Boston 10, Mass.
 Allan Mfg. & Welding Co., 726 Washington St., Buffalo 3, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 158
 Haynes Stellite Co., Harrison & Lindsay Sts., Kokomo, Ind.
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 Lincoln Electric Co., 12818 Colt Rd., Cleveland, Ohio
 Linde Air Prod. Co., 30 E. 42nd St., New York, N. Y.
 Alexander Milburn Co., 1425 W. Baltimore St., Baltimore, Md.
 Tweco Products Co., 1018 E. English St., Wichita 1, Kans.
 U. S. Steel Supply Co., 1139 Wabansia Ave., Chicago, Ill.
 Universal Power Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Westinghouse Elec. & Mfg. Co., East Pittsburgh, Penn.

WELDING MACHINES

Air Reduction Sales, 60 E. 42nd, New York 17, N. Y.
 Allan Mfg. & Welding Co., 726 Washington St., Buffalo 3, New York.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Glenn-Roberts Co., 1009 Fruitvale, Oakland, Calif.
 Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 158
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio
 Marquette Mfg. Co., Minneapolis, Minn.
 Universal Power Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Westinghouse Elec. & Mfg. Co., East Pittsburgh, Penn.

WELDING RODS & ELECTRODES

Air Reduction Sales Co., 60 E. 42nd, New York 17, N.Y.
 Allied Steel Products, Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Aluminum Co. of America, 801 Guff Bldg., Pittsburgh 19, Penn.
 The American Brass Co., 414 Meadow, Waterbury 88, Conn.
 American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill. 45
 American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio
 Audubon Wire Cloth Corp., (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn.
 Coast Metals, Inc., 1232 Camden St., S. W., Canton 6, Ohio
 Dymonhard Corp. of America, 407 Park Square Bldg., Boston 10, Mass.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 158
 Haynes Stellite Co., Harrison & Lindsay Sts., Kokomo, Ind.
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 The International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.
 R. G. LeTourneau, Inc., Peoria 3, Ill.
 Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio
 Linde Air Prod. Co., 30 E. 42nd St., New York, N. Y.
 Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.
 Meckum Eng., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
 Metal & Thermit Corp., 120 Broadway, New York 5, N. Y.
 National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.
 Page Steel & Wire Div., Amer. Chain & Cable Co., Inc., Monessen, Penn. 3rd Cov. Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.

Resisto-Loy Co., 127 Bayliss St., S.W., Grand Rapids 7, Mich. 38
 Joseph T. Ryerson & Son., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill. 6
 Stoddy Co., 1134 W. Slauson St., Whittier, Calif. 300
 Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137
 Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y.
 U. S. Steel Supply Co., 1319 Wabansia Ave., Chicago, Ill.
 Universal Power Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Wall - Colmonoy Corp., 714 Fisher Bldg., Detroit 2, Mich.
 Westinghouse Electric & Mfg. Co., East Pittsburgh, Penn.
 Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y. 20

WELDING SUPPLIES (See also Welding & Cutting Equipment)

Air Reduction Sales Co., 60 E. 42nd St., New York City 17, N. Y.
 Allis-Chalmers Mfg. Co., Milwaukee 1, Wis. 49, 53
 Davis Emergency Equipment Co., Inc., 45 Halleck St., Newark 4, N. J.
 General Electric Co., 1 River Rd., Schenectady 5, N. Y.
 Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis. 145, 158
 Hobart Brothers Co., Hobart Square, Troy 1, Ohio
 Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio
 The Alexander Milburn Co., 1425 W. Baltimore 23, Maryland.
 Resisto-Loy Co., 127 Bayliss St., S.W., Grand Rapids 7, Mich. 38
 Turco Products Inc., 6135 S. Central Ave., Los Angeles 1, Calif.
 Tweco Products Co., 1018 E. English St., Wichita 1, Kans.
 Universal Welder Corp., 764 Carnegie Ave., Cleveland 15, Ohio
 Westinghouse Electric & Mfg. Co., East Pittsburgh, Penn.

WELL CURBING MACHINERY & MOLDS. Concrete

Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
 Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio.
 McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn. 139
 Quinn Wire & Iron Wks., Boone, Iowa
 WFT PANS. Grinding
 The Bonnot Co., Mulberry Rd. S. E., Canton Ohio
 Eagle Iron Works, 129 Holcomb, Des Moines 4, Iowa. 301
 International Engr., Inc., 1145 Bolander Ave., Dayton 1, Ohio
 Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.

DIRECTORY

Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Penn.
W. A. Riddell Corp., Bucyrus, Ohio

WHEELBARROWS

Gar-Bro. Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
W. A. Riddell Corp., Bucyrus, Ohio

WHEELS, ABRASIVE

The Carborundum Co., Niagara Falls, N. Y.
Clipper Mfg. Co., 2800 Warwick, Kansas City 8, Mo.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan Inc., 61 Willett St., Passaic, N. J.
Stone Machinery Co., Inc., Manlius, N. Y.
U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y.

WHEELS, Car

American Car & Foundry Co., 30 Church St., New York 8, N. Y.
American Locomotive Co., 30 Church St., New York 8, N. Y.
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio
The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio
Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn.
Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Bonnot Co., Mulberry St., Canton 2, Ohio.
C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver, Colo.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, Ohio
Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
Eagle Iron Works, 129 Holcomb Ave., Des Moines 4, Iowa
Electric Steel Fdy., 2141 N.W. 25th Ave., Portland 10, Ore.
Electric Wheel Co., 28th & Cedar Sts., Quincy, Ill.
Enterprise Engine & Fdy. Co., 18th & Florida Sts., Francisco 10, Calif.
Farrel - Birmingham, Ansonia, Conn.
Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio
Frog, Switch & Mfg. Co., Carlisle, Penn.
Helmick Foundry - Machine Co., Lock Drawer 71, Fairmont, W. Va.
Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.
Kent Machine Co., Cuyahoga Falls, Ohio
Link-Belt Co., 330 W. Pershing Rd., Chicago, Ill.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.

Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.

The Medart Co., 100 Potomac St., St. Louis 18, Mo.
D. J. Murray Mfg. Co., Wausau, Wis.

National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio

Ottumwa Iron Wks., Ottumwa, Iowa

Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.

H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Pressed Steel Car Co. Industrial Div., 402 W. Main St., 2500 Koppers Bldg., Pittsburgh 30, Penn.

Rogers Iron Wks., 11th & Pearl, Joplin, Mo.

Sanford-Day Iron Works, Inc., 612 Dale Ave., Knoxville 9, Tenn.

Stroh Process Steel Co., 1428 High St., Pittsburgh 12, Penn.

Taylor-Wharton Iron and Steel Co., High Bridge, N. J.

Watt Car & Wheel Co., Barnesville, Ohio

Wisconsin Foundry & Mach. Co., 623 E. Main St., Madison 1, Wis.

WHEELS, Crane

American Car & Foundry Co., 30 Church St., New York 8, N. Y.

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.

The American Rollings Mills Co., 703 Curtis St., Middletown, Ohio

Bethlehem Steel Co., Bethlehem, Penn.

Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.

The Cleveland Crane & Eng. Co., Wickliffe, Ohio

Downs Crane & Hoist Co., 540 W. Vernon Ave., Los Angeles 37, Calif.

Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.

Electric Steel Foundry Co., 2141 N.W. 25th Ave., Portland 10, Oregon

Electric Wheel Co., 28th & Cedar Sts., Quincy, Ill.

Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio

Frog, Switch & Mfg. Co., Carlisle, Penn.

Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.

National Steel Prod. Co., 1611 Crystal Ave., Kansas City 3, Mo.

Stroh Process Steel Co., 1428 High Rd., Pittsburgh 12, Penn.

Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

The Tool Steel Gear & Pinion Co., 211 Township Ave., Cincinnati 16, Ohio.

WHEELS, Sprocket

Allied Steel Products, Inc., 1721 N.B.C. Bldg., Cleveland 14, Ohio

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, Ohio

Bodinson Mfg. Co., Inc., 2401 Bayshore Blvd., San Francisco 24, Calif.

Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.

Continental Gin Co., Industrial Div., 4500 5th Ave., Birmingham, Ala.

The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

Diamond Chain Co., Inc., 402 Kentucky Ave., Dept. 520, Indianapolis 7, Ind.

The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.

Electric Steel Fdy., 2141 N.W. 25th Ave., Portland 10, Ore.

Electric Wheel Co., 28th & Cedar Sts., Quincy, Ill.

Farrel - Birmingham Co., Inc., Ansonia, Conn.

Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio

Frog, Switch & Mfg. Co., Carlisle, Penn.

R. R. Howell Co., P.O. Box 264, Minneapolis, Minn.

Industrial Gear Mfg. Co., 4544 W. Van Buren St., Chicago 24, Ill.

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio

Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.

Kent Machine Co., Cuyahoga Falls, Ohio

Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Penn.

Maddox Fdy. & Machine Wks., Archer, Florida

Madsen Iron Wks., 5631 Bickett St., Huntington Park, Calif.

The Medart Co., 100 Potomac St., St. Louis 18, Mo.

Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio

D. J. Murray Mfg. Co., Wausau, Wis.

Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.

Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.

Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.

Stroh Process Steel Co., 1428 High St., Pittsburgh 12, Penn.

Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

The Tool Steel Gear & Pinion Co., 211 Township Ave., Cincinnati 16, Ohio.

Webster Mfg. Inc., Tiffin, Ohio

Wisconsin Foundry & Mach. Co., 623 East Main, Madison 1, Wis.

WHEELS (Tracklaying Type)

Allied Steel Products, Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio

American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.

Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill.

The Buda Co., 15401 Commercial Ave., Harvey, Ill.

Electric Wheel Co., 28th & Cedar Sts., Quincy, Ill.

Henneuse Eng. Co., 400 Monroe St., Marion, Ohio.

Pacific Car & Foundry Co., Factory St., Renton, Wash.

Trackson Co., 3333 S. Chase Ave., Milwaukee 1, Wis.

WHIRLEYS

American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.

Clyde Iron Works Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.

Dravo Corp., Neville Island, Pittsburgh 25, Penn.

Fred T. Kern Co., Box 2057, Milwaukee, Wis.

Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.

Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio

Pacific Car & Foundry Co., Factory St., Renton, Wash.

WINCHES (See also Capstans)

Alloy & Steel Metals Co., 1862 E. 55th St., Los Angeles, Calif.

American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.

C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, Ohio

Bonded Scale Co., 41 Bellview Ave., Cleveland 7, Ohio

Chain Belt Co., 1649 W. Bruce St., Milwaukee, Wis.

Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y.

Clyde Iron Works, Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.

Continental Gin Co., Industrial Div., 4500 5th Ave., Birmingham, Ala.

Detroit Hoist & Machine Co., 8214 Morrow Ave., Detroit 11, Mich.

Diamond Iron Works Inc., and The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.

Dobbie Foundry & Machine Co., 146-170 Portage Road, Niagara Falls, N. Y.

Electro Lift, Inc., 30 Church St., New York 7, N. Y.

The Four Wheel Drive Auto Co., Clintonville, Wis.

Fridy Hoist & Mch. Co. Mountville, Penn.

Fruehauf Trailer Co., 10940 Harper Ave., Detroit 13, Mich.

Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.

The Hell Co., 3000 W. Montana St., Milwaukee 1, Wis.

Isaacson Iron Works, 2917 E. Marginal Way, Seattle 14, Wash.

Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio

Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.

McGann Mfg. Co., Inc., Box 1187, York, Penn.

McKiernan-Terry Corp., 15 Park Row, New York 7, N. Y.

Morrow Mfg. Co., 722 E. 10th St., Wellston, Ohio

Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.

Novo Engine Co., 702 Porter St., Lansing, Mich.

O. K. Clutch & Mch. Co., Florence Street, Columbia, Penn.

Pacific Car & Foundry Co., Factory St., Renton, Wash.

H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.

W. A. Riddell Corp., Bucyrus, Ohio

DIRECTORY

Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56

The Sasgen Derrick Co., 3101 W. Grand Ave., Chicago 22, Ill.

Six Wheels Inc., 1559-1584 E. 20th St., Los Angeles 11, Calif.

Stearns-Rogers Mfg. Co., 1718-22 California St., Denver 2, Colo.

Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Truck Eng. Corp., 1285 W. 70th St., Cleveland, Ohio

Vulcan Iron Works, 700 S. Main Street, Wilkes-Barre, Penn.

Webster Mfg. Inc., Tiffin, Ohio

WIRE & CABLE, Electrical

Aluminum Co. of America, 801 Gulf Bldg., Pittsburgh 19, Penn.

American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio

Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.

General Cable Corp., 420 Lexington Ave., New York 17, N. Y.

General Electric Co., 1 River Rd., Schenectady 5, N. Y.

Okonite Co., Passaic, N. J.

Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.

John A. Roebling's Sons Co., 640 E. Broad, Trenton 2, N. J. 17

Simplex Wire & Cable Co., 79 Sidney St., Cambridge 39, Mass.

U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y.

Westinghouse Electric & Mfg. Co., Hill St., East Pittsburgh, Penn.

WIRE CLOTH

Acme Wire & Iron Works, 3527 E. Canfield Ave., Detroit 7, Mich.

Audubon Wire Cloth Corp., (Subsidiary of Manganese Steel Forge Co.), Richmond St. & Castor Ave., Philadelphia, Penn.

Buffalo Wire Works Co., 308-332 Terrace, Buffalo, N. Y.

The California Wire Cloth Corp., 1001 22nd Ave., Oakland, Calif.

Cleveland Wire Cloth & Mfg. Co., 3573 E. 78th St., Cleveland 5, Ohio 287

Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.

The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

Cyclone Fence Div., American Steel & Wire Co., Waukegan, Ill.

Farrel - Birmingham Co., Inc., Ansonia, Conn.

HarriSteel Products Co., 420 Lexington Ave., New York 17, N. Y.

Hewitt Rubber of Buffalo, Div. of Hewitt-Robins Inc., 240 Kensington Ave., Buffalo 5, N. Y. 56

Iowa Mfg. Co., 916 16th St., N.E., Cedar Rapids, Ia. 67

The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio 63

Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York, N. Y. 15

Ludlow-Saylor Wire Co., 600 S. Newstead Ave., St. Louis, Mo. 302

Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.

Michigan Wire Cloth Co., 2108 Howard St., Detroit, Mich.

The Multi-Metal Wire Cloth Co., 1350 Garrison Ave., New York 59, N. Y.

National Wire Cloth Co., 252 W. Fairfield Ave., St. Paul, Minn.

Newark Wire Cloth Co., 351 Verona Ave., Newark 4, N. J.

Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.

Pioneer Engr. Works, 1515 Central Ave., Minneapolis 13, Minn.

Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.

Robins Conveyors Inc., (Div. Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J. 56

John A. Roebling's Sons Co., 640 S. Broad St., Trenton, N. J. 17

Screen Equipment Co., Inc., 9 Lafayette Ave., Buffalo 13, N. Y.

Simplicity Engineering Co., Oak St., Durand, Mich. 131

Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137

Twin City Iron & Wire Co., 23 W. Water St., St. Paul, Minn.

The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio 287

U. S. Steel Supply Co., 1319 Wabansia Ave., Chicago, Ill.

Wickwire Spencer Steel, Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y. 20

WIRE ROPE

Allied Steel Products, Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio

American Cable Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 3rd Cover

American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio

Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65

Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.

Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.

Electroline Co., 4121 S. La Salle St., Chicago, Ill.

Farrel - Birmingham Co., Inc., Ansonia, Conn.

Hazard Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 3rd Cover

Jones & Laughlin Steel Corp., 3rd & Ross Sts., Pittsburgh 30, Penn.

A. Leschen & Sons Rope Co., 5909 Kennerly Ave., St. Louis 12, Mo. 138

R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.

MacWhyte Co., 2949 14th Ave., Kenosha, Wis.

Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

John A. Roebling's Sons Co., 640 S. Broad, Trenton 2, N. J. 17

Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill. 6

Sullivan Division, Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Penn.

Union Wire Rope Corp., 21st & Manchester, Kansas City, Mo.

The Upson-Walton Co., Perry Payne Bldg., Cleveland 13, Ohio 8

Wickwire Spencer Steel, Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y. 20

WIRE ROPE FITTINGS, Clamps, Clips, Hooks, Sockets

American Cable Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 3rd Cover

American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn. 153

American Manganese Steel, Div., 377 E. 14th St., Chicago Heights, Ill. 45

American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio

Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65

Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.

Byron Jackson Co., P.O. Box 2017 Terminal Annex, Los Angeles 54, Calif.

Chicago Steel Fdry. Co., 3720 S. Kedzie Ave., Chicago, Ill.

Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.

Dobble Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.

Electric Steel Foundry Co., 2141 N.W. 25th Ave., Portland 10, Oregon

Electroline Co., 4121 S. La Salle St., Chicago, Ill.

Gar-Bro Mfg. Co., Div. of Garlinghouse Bro. Mfg. Co., 2416 E. 16th St., Los Angeles 21, Calif.

Hazard Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 3rd Cover

The Industrial Products Co., 2705 N. Fourth St., Philadelphia 33, Penn.

Jones & Laughlin Steel Corp., Gilmore Wire Rope Div., Muncy, Penn.

Thomas Laughlin Co., 143 Fore St., Portland 6, Me.

A. Leschen & Sons Rope Co., 5909 Kennerly Ave., St. Louis, Mo. 138

MacWhyte Co., 2949 14th Ave., Kenosha, Wis.

Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

National Production Co., 4561 St. Jean Ave., Detroit 13, Mich.

Pacific Car & Foundry Co., Factory St., Renton, Wash.

John A. Roebling's Sons Co., 640 S. Broad, Trenton 2, N. J. 17

Sauerman Bros., Inc., 522 S. Clinton St., Chicago 7, Ill. 160

Union Wire Rope Corp., 21st & Manchester, Kansas City 3, Mo.

U. S. Steel Supply Co., 1319 Wabansia Ave., Chicago, Ill.

Taylor-Wharton Iron & Steel Co., High Bridge, N. J. 137

Union Wire Rope Corp., 21st & Manchester Ave., Kansas City 3, Mo.

The Upson-Walton Co., Perry Payne Bldg., Cleveland 13, Ohio 8

Wickwire Spencer Steel, Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y. 20

WIRE ROPE, Slings

American Cable Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 3rd Cover

American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio

Bethlehem Steel Corp., 701 E. Third St., Bethlehem, Penn. 65

Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.

Electric Steel Fdy. Co., 2141 N.W. 25th Ave., Portland 10, Ore.

Electroline Co., 4121 S. La Salle St., Chicago, Ill.

Hazard Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 3rd Cover

Jones & Laughlin Steel Corp., 3rd & Ross Sts., Pittsburgh 30, Penn.

A. Leschen & Sons Rope Co., 5909 Kennerly Ave., St. Louis 12, Mo. 138

MacWhyte Co., 2949 14th Ave., Kenosha, Wis.

Meckum Engr., Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

Pacific Car & Fdy. Co., 4th & Factory St., Renton, Wash.

John A. Roebling's Sons Co., 640 S. Broad, Trenton 2, N. J. 17

Sauerman Bros., Inc., 522 S. Clinton St., Chicago 7, Ill. 152

Union Wire Rope Corp., 21st & Manchester, Kansas City 3, Mo.

The Upson-Walton Co., Perry Payne Bldg., Cleveland 13, Ohio 8

Wickwire Spencer Steel, Div., Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y. 20

WIRE ROPE DRESSING COMPOUNDS

American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio

Fiske Bros. Refining Co., 129 Lockwood St., Newark 5, N. J.

Hazard Wire Rope, Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn. 3rd Cover

A. Leschen & Sons Rope Co., 5909 Kennerly Ave., St. Louis 12, Mo. 138

MacWhyte Co., 2949 14th Ave., Kenosha, Wis.

New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, N. Y.

John A. Roebling's Sons Co., 640 S. Broad St., Trenton 2, N. J. 17

Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif. 43

Sun Oil Co., 1608 Walnut St., Philadelphia 3, Penn.

WIRE, Welding (See Welding Rods, Electrodes)

TRADE NAMES

Section

2

of Manufacturers' Equipment . . 1947

A

Abraso Screens—John A. Roeb-
ling's Sons Co., 640 S. Broad
St., Trenton 2, N. J.

**Abrasoweld Arc Welding Electro-
de**—Lincoln Electric Co.,
12818 Colt Rd., Cleveland 1,
Ohio

A-1 Jaw Crusher—Allis-Chalmers
Tractor Division, 1126 S. 70th
St., Milwaukee 1, Wis.

A-C Engines, Tractors—Allis-
Chalmers Tractor Division, 1126
S. 70th St., Milwaukee, Wis.

A-C Allis-Chalmers Entire Line—
Allis-Chalmers Manufacturing
Co., Milwaukee 1, Wis.

Ace Screw Conveyor Box Ends—
Screw Conveyor Corp., 700
Hoffman St., Hammond, Ind.

Acme Fire Clay Brick—General
Refractories Co., 1600 Real Es-
tate Trust Bldg., Philadelphia
7, Penn.

**Accordion Fold Electric Blasting
Caps**—Atlas Powder Co., Trust
Bldg., Wilmington 99, Del.

Adacast Castable Refractory—
Bottfield Refractories Co., 777
S. Swanson St., Philadelphia
47, Penn.

**Adachrome Cast Castable
Chrome Refractory**—Bottfield
Refractories Co., 777 S. Swanson
St., Philadelphia 47, Penn.

**Adachrome Refractory Chrome
Cement**—Bottfield Refractories
Co., 777 S. Swanson St., Phila-
delphia 47, Penn.

Adamant Fire Brick Cement—
Bottfield Refractories Co., 777
S. Swanson St., Philadelphia
47, Penn.

**Ada-Stic Plastic Insulating Cem-
ent**—Bottfield Refractories
Co., 777 S. Swanson St., Phila-
delphia 47, Penn.

Adamant Super Genuine Babbitt
—Magnolia Metal Co., 18 W.
Jersey St., Elizabeth 4, N. J.

Adamantine Alloy Steel Castings
—The Babcock & Wilcox Co.,
85 Liberty St., New York 6,
N. Y.

Adapatch Plastic Fire Brick—
Bottfield Refractories Co., 777
S. Swanson St., Philadelphia
47, Penn.

**Advance Blast Hole, Prospecting,
Well Drilling & Boring Ma-
chinery**—The Loomis Machine
Co., 15 E. Market St., Tiffin,
Ohio

**Aeration Unit for Blending, Agi-
tation**—Fuller Co., Fuller
Bldg., Catasauqua, Penn.

Aerodyne Fann & Blowers—The
Jeffrey Mfg. Co., 935-99 N. 4th
St., Columbus 16, Ohio

Aero Seal Synthetic Rubber Parts
—Chicago Belting Co., 113 N.
Green St., Chicago 7, Ill.

Aero-Vibe Vibrating Screens—
Allis-Chalmers Manufacturing
Co., Milwaukee 1, Wis.

Agitair Flotation Machines—The
Gallagher Co., 48 S. 2nd East
St., Salt Lake City 1, Utah.

**Airco Welding & Cutting Equip-
ment**—Air Reduction Sales Co.,
60 E. 42nd St., New York 17,
N. Y.

**Air Cushion Air Compressors &
Centrifugal Pumps**—Pennsyl-
vania Pump & Compressor Co.,
Easton, Penn.

Air King Air Hose Couplings—
Dixon Valve & Coupling Co.,
Hancock St. & Columbia Ave.,
Philadelphia, Penn.

**Air Kooled Worm Gear Speed
Reducers**—Philadelphia Gear
Works, Inc., Erie Ave. & G
St., Philadelphia 34, Penn.

Airam Brick—General Refractor-
ies Co., 1600 Real Estate Trust
Bldg., Philadelphia 7, Penn.

Airflex Couplings—The Falk
Corp., 3001 W. Canal, Mil-
waukee 8, Wis.

**Airline Lubrigns Airmotor Oper-
ated Lubricant Pumps**—Lin-
coln Engineering Co., 5701 Nat-
ural Bridge, St. Louis 20, Mo.

Air Lined Protective Hats—E. D.
Bullard Co., 275-8th St., San
Francisco 3, Calif.

Airmaster Portable Compressors
Le Roi Co., 1706 S. 65th St.,
Milwaukee 14, Wis.

Airmat Air Filter—American Air
Filter Co., Inc., 215 Central
Ave., Louisville 7, Ky.

Air-o-Line Controllers—The
Brown Instrument Co., Div. of
Minneapolis-Honeywell Regu-
lator Co., 4444 Wayne Ave.,
Philadelphia 44, Penn.

Air-Plus Compressors—Jaeger
Machine Co., 550 W. Spring
St., Columbus 16, Ohio

Airveyor Conveying Systems—
Fuller Co., Fuller Bldg., Catas-
auqua, Penn.

Ajax Flexible Couplings—Ajax
Flexible Coupling Co., Inc.,
English & Portage Sts., West-
field, N. Y.

**Ajax Hose (Air Drill, Water,
Steam)**—Hewitt Rubber of
Buffalo, Div. of Hewitt-Robins
Inc., 240 Kensington Ave.,
Buffalo 5, N. Y.

**Ajax Lo-Veyors Vibrating Con-
veyors**—Ajax Flexible Coup-
ling Co., Inc., Westfield, N. Y.

**Akins Classifiers, Dewaterers,
Washers**—Colorado Iron
Works Co., 1624 17th St., Den-
ver 2, Colo.

Alamo Refractory Brick—Harbi-
son-Walker Refractories Co.,
Farmers Bank Bldg., Pitts-
burgh 22, Penn.

**Albany Sand Slinger for Loading
Box Cars**—Link-Belt Co., 2045
West Hunting Park Ave., Phila-
delphia 40, Penn.

Alcaid Lubricating Oil—The
Texas Co., 135 East 42nd St.,
New York 17, N. Y.

**Alco Diesel Engines, Heat Ex-
changers, Locomotives**—Ameri-
can Locomotive Co., 30 Church
St., New York 8, N. Y.

Algot Lubricating Oil—The Texas
Co., East 42nd St., New York
17, N. Y.

Allicastel Sheaves—Vulcan Iron
Works, 730 S. Main St., Wilkes-
Barre, Penn.

Allegheny Stainless Steel—Joseph
T. Ryerson & Son, Inc., 2538
W. 16th St., Box 8000-A, Chi-
cago 80, Ill.

Allgood Air Hose—Goodall Rub-
ber Co., 5 S. 36th St., Phila-
delphia 4, Penn.

**Alligator Belt Cutters, Steel Belt
Lacing, V-Belt Fasteners**—
Flexible Steel Lacing Co., 4607-
31 Lexington St., Chicago 44,
Ill.

**Allis-Chalmers Crawler (Diesel)
Tractors, Wheel Tractors**—
(Gas), Power Units (Gasoline
Engines), Motor Graders (Gas
& Diesel)—Allis-Chalmers Mfg.
Co., Tractor Div., Main Office,
Milwaukee 1, Wis.

Alubro-Weld Glass Lenses—Will-
son Products, Inc., 2nd and
Washington Sts., Reading,
Penn.

**Alumex Fire Brick and Kiln
Liners**—Mexico Refractories
Co., Love & Cole Sts., Mexico,
Mo.

**Alusite High-Alumina Refractory
Brick**—Harbison-Walker Re-
fractories Co., Farmers Bank
Bldg., Pittsburgh 22, Penn.

**Alton Dynamite, Black & Pellet
Powder**—Equitable Powder
Mfg. Co., East Alton, Ill.

**Amalle Pennsylvania Lubricants
& Oils**—L. Sonneborn Sons,
Inc., 88 Lexington Ave., New
York 16, N. Y.

**Amerclad Electric Wire & Cables,
Welding Cables**—American
Steel & Wire Co., Rockefeller
Bldg., Cleveland 13, Ohio

American Cable Wire Rope—
American Chain & Cable Co.,
Inc., Bridgeport 2, Conn.

American Air Separators—Kent
Mill Co., 10 Rapalye St., Brook-
lyn 31, N. Y.

**American Blasting Caps, Ex-
plosives, Blasting Supplies**—
American Cyanamid & Chemi-
cal Corp., Explosives Dept. 30
Rockefeller Plaza, New York
20, N. Y.

American Clay Machines—W. A.
Riddell Corp., 201 E. Warren,
Bucyrus, Ohio.

**American Controllers, Regula-
tors, Tachometers**—Manning,
Maxwell & Moore, Inc., 11
Elias St., Bridgeport 2, Conn.

**American Disc Type Filters, Con-
tinuous Vacuum**—Oliver United
Filters, Inc., 33 W. 42nd St.,
New York 18, N. Y.

**American Fence & Cables (Elec-
trical), Reinforcement, Tram-
ways**—American Steel & Wire
Co., Rockefeller Bldg., Clevel-
and 13, Ohio

American Flexible Couplings—
American Flexible Coupling
Co., Div. of J. A. Zurn Mfg.
Co., 1801 Pittsburgh Ave., Erie,
Penn.

**American Hammermills, Ring
Crushers and Shredders**—Amer-
ican Pulverizer Co., 1249 Mack-
lind Ave., St. Louis 10, Mo.

**American Hoisting Machinery,
Cranes, Car Pullers, Blocks,
Sheaves**—American Hoist &
Derrick Co., 63 S. Robert St.,
St. Paul 1, Minn.

American Pumps—The American
Well Works, 100 North Broad-
way, Aurora, Ill.

**American Regulators & Tacho-
meters**—Manning, Maxwell &
Moore, Inc., 11 Elias St.,
Bridgeport 2, Conn.

**American Revolver Gantry
Cranes**—American Hoist &
Derrick Co., 63 S. Robert St.,
St. Paul 1, Minn.

Amodyn Explosives—Atlas Pow-
der Co., Wilmington 99, Del.

Ampac Arc Welders—Allis-Chal-
mers Manufacturing Co., Mil-
waukee 1, Wis.

Ampere Canvas Stitched Belting
—Victor Balata & Textile Bel-
ting Co., 53 Park Pl., New York
7, N. Y.

**Ampliset Free-Vane Air-Oper-
ated Controller**—The Bristol
Company, Waterbury 91, Conn.

Amsco Dredge Pumps—American
Manganese Steel Division of
American Brake Shoe Co., 377
E. 14th St., Chicago Heights,
Ill.

Amsco Manganese Steel Feeder
Stephens-Adamson Mfg. Co., 7
Ridgeway, Aurora, Ill.

Anaconda All Products—The
American Brass Co., 414
Meadow, Waterbury 88, Conn.

Anaconda Belting—Main Belting
Co., 1241 Carpenter St., Phila-
delphia 47, Penn.

Anaconda Crushing Rolls—Allis-
Chalmers Manufacturing Co.,
Milwaukee 1, Wis.

**Anchor High-Alumina Refractory
Brick**—Harbison-Walker Re-
fractories Co., Farmers Bank
Bldg., Pittsburgh 22, Penn.

Angledrozer Tractor Bulldozer—
R. G. LeTourneau, Inc., 2301
North Adams, Peoria 3, Ill.

Anglegraders Angledozer—Track-
son Co., 3333 S. Chase Ave.,
Milwaukee 1, Wis.

**Anhydrex Electric Wires &
Cables**—Simplex Wire & Cable
Co., 79 Sidney St., Cambridge
39, Mass.

**Anthony Hydraulic Dump Bodies,
Hoists and Agricultural Lime
Spreaders**—Anthony Co., Inc.,
Streator, Ill.

**Anti-Friction Belt Conveyor
Idlers**—Link-Belt Co., 300 West
Pershing Road, Chicago 9, Ill.

Apocodyn Explosives—Atlas Pow-
der Co., Wilmington 99, Dela-
ware.

Apex Explosives—Atlas Powder
Co., Wilmington 99, Del.

**Apex Super Duty Deaired Kiln
Liner**—Walsh Refractories
Corp., 4070 N. First St., St.
Louis 7, Mo.

**Appley Little Giant Concrete
Block Machine**—J. W. Appley
& Son Inc., 831 9th St. No., St.
Petersburg 2, Fla.

**Aquella Waterproofing Com-
pound**—Prima Products, Inc.,
10 E. 40th St., New York 16,
N. Y.

Arch-Crimp Woven Wire Screen
—Ludlow-Saylor Wire Co.,
Newstead Ave. & Wabash R.
R., St. Louis 10, Mo.

Arco High Alumina Brick—Gen-
eral Refractories Co., 1600 Real
Estate Trust Bldg., Philadel-
phia 7, Penn.

Arco-70 High Alumina Brick—
General Refractories Co., 1600
Real Estate Trust Bldg., Phila-
delphia 7, Penn.

Arco-80 High Alumina Brick—
General Refractories Co., 1600
Real Estate Trust Bldg., Phila-
delphia 7, Penn.

**Armacs Amine Acetate Salts,
Flotation Reagents**—Armour
Chemical Div., Armour & Co.,
1355 W. 31st St., Chicago 9, Ill.

**Armeens High Molecular Weight
Aliphatic Amines, Flotation
Reagents**—Armour Chemical
Div., Armour & Co., 1355 W.
31st St., Chicago 9, Ill.

**Armco Steel, Dredge Pipe, Spe-
cial Purpose Steels, Car Wheels
& Steel Buildings**—The Amer-
ican Rolling Mill Co., 703 Cur-
tis St., Middletown, Ohio

**Armoflotes Mixed Nitrile Amine
Flotation Reagents**—Armour
Chemical Div., Armour & Co.,
1355 W. 31st St., Chicago 9, Ill.

Armorite Underground Cables—
The Okonite Co., Passaic, N. J.

Arno Air Hose, Steam Hose—Cin-
cinnati Rubber Mfg. Co.,
Franklin Ave., Cincinnati 12,
Ohio

Arnold Air Line Lubricators—
Rucker-Vaughn Co., 4228 Hollis
St., Oakland 8, Calif.

**Arquads Quaternary Ammonium
Salts, Flotation Reagents**—
Armour Chemical Div., Arm-
our & Co., 1355 W. 31st St.,
Chicago 9, Ill.

Artic Greases—Standard Oil Co.
of California, 225 Bush St., San
Francisco 20, Calif.

Asbestos Cord Steam Hose—The
Goodyear Tire & Rubber Co.,
Inc., 1144 E. Market, Akron,
Ohio.

Asco Chain—Atlantic Steel
Corp., 1775 Bdw., New York
19, N. Y.

TRADE NAMES

Ashcroft Gauges—Manning, Maxwell & Moore, Inc., 11 Elias St., Bridgeport 2, Conn.

Athy Track-Laying Type Wheels, Trailers & Wagons, Tractor Shovels, Truck Loaders—Athy Truss Wheel Co., 5631 W. 65th St., Chicago 38, Ill.

Atlantic Pneumatic Pipe Driver, Pneumatic Rock Breaker, Concave Moil Point and Moil Points—Atlantic Steel Corp., 1775 Broadway, New York 19, N. Y.

Atlantic 33 Non-Tempering Tool Steel—Atlantic Steel Corp., 1775 Bdwy., New York 19, N. Y.

Atlantic Hose, Packing—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

Atlas Braided Wire Rope Slings—Macwhyte Co., Kenosha, Wis.

Atlas Chains—The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio

Atlas Explosives—Atlas Powder Co., Wilmington 99, Del.

Atlas Imperial Diesel Engines & Diesel-Electric Generator Sets—Atlas Imperial Diesel Engine Co., 102 New Montgomery St., San Francisco 5, Calif.

Atlas Industrial Haulage Equipment—The Atlas Car & Manufacturing Co., 1100 Ivanhoe Rd., Cleveland 10, Ohio.

Atlas Slings—Macwhyte Co., 2906 14th Ave., Kenosha, Wis.

Atlas Polar Diesel Engines—Bohlander's Co., Inc., 33 Rector, New York 6, N. Y.

Atloy Industrial Alloy Steel—Atlantic Steel Corp., 1775 Bdwy., New York 19, N. Y.

Atasco Tool Steel—Atlantic Steel Corp., 1775 Bdwy., New York 19, N. Y.

Atox Airvent Grinding Mills—F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y.

Austin-Western Cars, Conveyors, Cranes, Crushers, Crushing and Screening Plants, Draglines, Shovels—Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.

Automatic Battery-Powered Electric Industrial Trucks—Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill.

Auto-Centri Automatic Centrifugal Clutch—Hardinge Co., Inc., 240 Arch St., York, Penn.

Auto-Raise Thickeners—Hardinge Co., 240 Arch St., York, Penn.

Autoset Free-Vane Air-Operated Controller—The Bristol Company, Waterbury 91, Conn.

Aztek High Heat Fire Brick—Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.

B

B & B Wire Rope & Slings—Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.

Baby Tandem Portable Crushing Plant—Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Iowa.

Badger Bins, Jaw Crushers, Roll Crushers, Portable Crushing & Screening Plants, Mine Hoists—Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

Badger Shovel, Clamshell, Dragline, Trench Hoe—Austin Western Co., Aurora, Ill.

Baffle-Crete for Monolithic Baffle Construction—Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.

Baggaker Bag Filling & Closing Machines—Bagpak, Inc., 220 E. 42nd St., New York 17, N. Y.

Baker Industrial Trucks, Cranes, Tractors—The Baker-Rauling Co., 2168 W. 25th St., Cleveland 13, Ohio.

Balanced Rolls, Crushing Rolls—Sturtevant Mill Co., 41 Harrison St., Boston 22, Mass.

Balcrank Lubricators & High Pressure Grease Fittings—Balcrank Inc., Cincinnati 9, Ohio

Baldwin-Rex Roller Chains—Chain Belt Co., 1649 West Bruce St., Milwaukee 4, Wis.

Balpep Grinding Mills—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Band-It Industrial Pressure Clamps for Hose, Pipe, Tanks, etc.—Band-It Co., 2536 Walnut St., Denver 5, Colo.

Barr Chain Grizzlies—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Bartlett Concrete Roofing Tile Machinery—E. P. Barber Co., P. O. Box 3294, Los Angeles 53, Calif.

Bay City Crawler Shovels & Cranes—Bay City Shovels, Inc., Bay City, Mich.

Beco Excavator Accessories—Bucyrus-Erie Co., South Milwaukee, Wis.

Bee-Zee Screens—Bixby Zimmer Eng. Co., 961 Abingdon St., Galesburg, Ill.

Belt Saver Conveyor Pulleys—Sprout, Waldron & Co., Muncy, Penn.

Bemis Paper and Cloth Bags—Bemis Bro. Bag Co., 408 N. Pine St., St. Louis 2, Mo.

F. N. Bendelari, Sand & Gravel Jigs—F. N. Bendelari, Joplin National Bank Bldg., Joplin, Mo.

Berg Method of Entombment Concrete Vaults—Berg Vault Co., Equipment Division, 1920 Lucas Hunt Blvd., St. Louis, Mo.

Betterbags Paper Bags—Hammond Bag & Paper Co., 18th & Charles Sts., Wellsburg, W. Va.

Better Built Conveyors, Block Machines, Hoppers, Mixers—Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.

Better-Built Locomotives—H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.

Beyl Friction Clutches—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

B-G All Equipment—Barber-Greene Co., 631 W. Park Ave., Aurora, Ill.

Biglist Shovels, Spades, Scoops—Wood Shovel & Tool Co., Piqua, Ohio.

Bin-Dicator Bin Level Indicators—The Bin-Dicator Co., 14615 F. Jefferson Ave., Detroit 15, Mich.

Bird Centrifuges, Classifiers, Filters—Bird Machine Co., So. Walpole, Mass.

Birdsboro-Buchanan Crushers—Birdsboro Steel Foundry & Machine Co., 1941 Furnace St., Birdsboro, Penn.

Black Magic Hard Facing Welding Flux—Universal Power Corp., 764 Carnegie Ave., Cleveland 15, Ohio.

Blake Jaw Crushers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Blatt Mixers, Hoppers, Pallets, Lift Trucks—Frank I. Blatt Sales Co., Inc., Rattlesnake, Fla.

Blatt Universal Controlled Oscillation Block Machine—Frank I. Blatt Sales Co., Inc., Rattlesnake, Fla.

B-Linator Pyrometer Controllers—Bristol Co., Waterbury 91, Conn.

Blo-Matic Coal Stokers—The Herborn Engr. & Mfg. Co., Box 666, Sandusky, Ohio.

Blue Face Pulleys—Sprout, Waldron & Co., Muncy, Penn.

Blue Streak Mills, Pulverizers—Prater Pulverizer Co., 1825 S. 55th Ave., Chicago, Ill.

Bolinder's Diesel Engines—Bolinder's Co., Inc., 33 Rector, New York 6, N. Y.

Bolivian Water Hose—Cincinnati Rubber Mfg. Co., Franklin Ave. & Norwood Station, Cincinnati 12, Ohio

Bonded Scales, Vibrating Screens, Double Roll Crushers, Portable Power Stackers, Portable Coal Conveyors, Car Unloaders, Conveying Tables & Gravity Conveyors—Bonded Scale Co., 41 Bellview Ave., Columbus 7, Ohio.

Boone Refractory Brick—Harbison-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Penn.

Borod Hard Facing Alloy—Stoddy Co., 1129 W. Slauson St., Whittier, Calif.

Boss Air Valves, Hose Couplings—Dixon Valve & Coupling Co., Hancock St. & Columbia Ave., Philadelphia, Penn.

Bradley Grinding Mills, Air Separators, Pneumatic Mills—Bradley Pulverizer Co., 123 S. Third St., Allentown, Penn.

Branford Pneumatic Vibrators for Hoppers, Bins, Screens, Concrete Buckets, Concrete Placement, Vibrator Accessories—New Haven Vibrator Co., 131 Chestnut St., New Haven 7, Conn.

Bricktex Treated Cotton Conveyor Belting—Victor Balata & Textile Belting Co., 53 Park Place, New York 7, N. Y.

Bridgman Automatic Samplers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Briklok High Temperature Cement—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Bristol Automatic Control, Recording, Indicating Instruments, Socket Screws, Belt Lacing—The Bristol Company, Waterbury 91, Conn.

Brogal Galvanized Rope—Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis, Mo.

Broncho Water Suction Hose—Cincinnati Rubber Mfg. Co., Franklin Ave. & Norwood Station, Cincinnati 12, Ohio.

Bronze Bar Stock—Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.

Brooks Load Luggage (Quarry Haulage)—Brooks Equipment & Manufacturing Co., 408 Davenport Rd., Knoxville, Tenn.

Brooks-Taylor Lime Putty Plants—Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago 4, Ill.

Brookville Locomotives—Brookville Locomotive Works, Brookville, Penn.

Broughton Plaster Mixer—Dunning & Boschert, 382 W. Water St., Syracuse 4, N. Y.

Brown Hoists—The Herborn Engr. & Mfg. Co., Box 666, Sandusky, Ohio.

BSC Plugs & Plug Boards—Albert & J. M. Anderson Mfg. Co., 291 A St., Boston 10, Mass.

Buckbee Sand Dewatering Wheel—Stephens Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.

Buckeye Angledozer, Backfillers, Bulldozers, Draglines—Buckeye Traction Ditcher Co., Crystal St., Findlay, Ohio.

Buckeye Clipper Power Shovels—Buckeye Traction Ditcher Co., Crystal St., Findlay, Ohio.

Bucyrus-Erie Cranes, Draglines, Dredges, Drills, Shovels, Tractor Equipment—Bucyrus-Erie Co., P. O. Box 56, South Milwaukee, Wis.

Bucyrus-Monaghan Walking Draglines—Bucyrus-Erie Co., P. O. Box 56, South Milwaukee, Wis.

Bucyrus-Ruth Dredgers—Bucyrus-Erie Co., P. O. Box 56, South Milwaukee, Wis.

Buda Hydraulic Jacks, Hand Cars, Railway & Industrial Equipment, Track & Track Equipment, Wheels (Track Laying Type)—The Buda Co., 15401 Commercial Ave., Harvey, Ill.

Buda Chose Boy Trucks, Industrial—The Buda Co., 15401 Commercial Ave., Harvey, Ill.

Buda-Clark Track Shifters—The Buda Co., 15401 Commercial Ave., Harvey, Ill.

Buda Model BHJ Jacks, Hydraulic—The Buda Co., 15401 Commercial Ave., Harvey, Ill.

Buell (Van Tongeren) Dust Collectors—Buell Eng. Co., Inc., 70 Pine St., New York 5, N. Y.

Buffaloy Special Abrasive Resistant Rock Screen—Buffalo Wire Works Co., 487 Terrace, Buffalo, N. Y.

Buffalo Elevator Buckets—Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.

Buffalo Dust Collecting Equipment, Fans & Blowers, Pumps, Ventilating Equipment—Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.

Buffalo Hammermills—Buffalo Hammer Mill Corp., 27 Washington St., Buffalo 3, N. Y.

Buffalo Scales—Buffalo Scale Co., Inc., 1200 Niagara St., Buffalo, N. Y.

Buffalo Wire Cloth—Buffalo Wire Works Co., 487 Terrace, Buffalo, N. Y.

Bulk-Flow Elevator-Conveyor-Feeders—Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.

Bulldog Tractor & Shovel parts—Allied Steel Products, Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio.

Bulldog Jaw Crushers—Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.

Bulldog Type Gyratory Crushers—Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.

Bullock Motors, Generators & Electrical Apparatus—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Burch Belt Conveyors, Drag Conveyors, Dump Bodies—The Burch Corp., Crestline, Ohio.

Busch Conveyors, Dump Bodies—The Burch Corp., Crestline, Ohio.

B & W Bollers, Burners, Pulverized Coal Equipment, Refractories, Stokers—The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.

Byers—Cranes and Shovels—The Byers Machine Co., Ravenna, Ohio.

C

C Combination Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Cabelube-Power Cable Lubricant—Sackrete, Inc., Apple & Vandalla Aves., Cincinnati 23, Ohio

Cable Krete Power Cable Insulation—Sackrete, Inc., Apple & Vandalla Aves., Cincinnati 23, Ohio.

Caldecott Cone Desliming Classifiers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Caldwell Helicoid Conveyors—Link-Belt Co., 2410 West 18th St., Chicago 8, Ill.

Calol Industrial Oils and Greases—Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif.

Cambridge Mechanical & Electrical Instruments—Cambridge Instrument Co., Inc., 3010 Grand Central Terminal, New York 17, N. Y.

Cameron Pumps—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

Capacitor Pyrometer Controller—Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

Carscoop Scoop for Unloading Box Cars—Butler Bln Co., Box 407, Waukesha, Wis.

Carbex Triple-Forged Grinding Balls—Coates Steel Products Co., Greenville, Ill.

Carco Winches, Hoists, Bulldozers—Pacific Car & Foundry Co., 4th & Factory St., Renton, Wash.

Carcometal Alloy Steel—Pacific Car & Foundry Co., 4th & Factory St., Renton, Wash.

Cardox Fire Extinguishing Systems and Cartridges for Removing Slag from Rotary Kilns—Cardox Corp., 307 N. Michigan Ave., Chicago 1, Ill.

Cargocrane Wheel Mounted Cranes—Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.

Cargo Stacking Conveyors—George Hais Mfg. Co., Inc., 391 Canal Place, Bronx, New York 51, N. Y.

Carloader Lifting, Carrying and Tying Fork Truck—Clark Tractor Co., 114 Springfield Pl., Battle Creek, Mich.

TRADE NAMES

- Carrimor Scrapers** — La Plant-Choate Mfg. Co., Cedar Rapids, Iowa.
- Carryall Scrapers** — R. G. Le-Tourneau, Inc., 2301 N. Adams, Peoria 3, Ill.
- Cast-Refract Castable Refractory** — Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
- Cataract Grizzlies—Robins Conveyors Inc.**, 2700 Passaic Ave., Passaic, N. J.
- Caterpillar Diesel Engines, Diesel-Generator Sets, Earth Moving Equipment, Gasoline Engines, Natural Gas Engines, Tractors** — Caterpillar Tractor Co., Peoria 8, Ill.
- Cedarapids Crushers, Screens, Crushing and Screening Plants, Material Handling Equipment** — Iowa Manufacturing Co., 916 16th St., N.E., Cedar Rapids, Iowa.
- Celocrete Aggregates, Expanded Slag—The Celotex Corp.**, 120 S. La Salle St., Chicago 3, Ill.
- Cemcoat Protective Coating** — L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
- Centro-Matic Systems Centralized Lubricating Systems** — Lincoln Engineering Co., 5701 Natural Bridge Ave., St. Louis 20, Mo.
- Century Block Making Machine** — Century Cement Products, 3626 Main St., San Diego 2, Calif.
- Century Rubber Belting** — The Jeffrey Manufacturing Co., 935 N. 4th St., Columbus 16, Ohio.
- Chabelco Steel Chain—Chain Belt Co.**, 1649 W. Bruce St., Milwaukee 4, Wis.
- Chainrip Gear & Wheel Pullers** — Armstrong-Bray & Co., 5361 Northwest Highway, Chicago, Ill.
- Chainsaver Sprocket Wheels** — The Jeffrey Manufacturing Co., 935 N. 4th St., Columbus 16, Ohio.
- Challenge Ore Feeders** — Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
- Challenger Transmissions** — Republic Rubber Div., Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio.
- Challenger Underfeed Stoker—Link-Belt Co.**, 2410 W. 18th St., Chicago 8, Ill.
- Challenger Portable Conveyors—George Haiss Mfg. Co., Inc.**, Park Ave. & 143rd St., New York 51, N. Y.
- Champion Ball Mills—Straub Mfg. Co., Inc.**, 507 Chestnut St., Oakland 7, Calif.
- Champion Cinder Crushers, Conveyors, Elevators** — Champion Line Machinery Co., 95 Schuyler Ave., No. Arlington, N. J.
- Champion Drain Tile Machines—W. E. Dunn Manufacturing Co.**, 23 W. 24th St., Holland, Mich.
- Champion Fuel Tanks—The Truckstell Co.**, 1672 Union Commerce Bldg., Cleveland 14, Ohio.
- Champion Masonry Saws** — Champion Mfg. Co., 1307 Washington Ave., St. Louis 3, Mo.
- Champion Underfeed Stoker—Link-Belt Co.**, 2410 W. 18th St., Chicago 8, Ill.
- Champion V-Belts** — Republic Rubber Div., Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio.
- Charlot Conveyor Belts—Republic Rubber Div., Lee Rubber & Tire Corp.**, Albert St., Youngstown 1, Ohio.
- C. H. & E. Contractors Equipment—C. H. & E. Manufacturing Co.**, 3849 N. Palmer St., Milwaukee 12, Wis.
- Chronoflow Flow Meters (electrical)** — Builders-Providence, Inc., 9 Coddling St., Providence 1, R. I.
- Circle Belts (Conveyor, Grader), Air & Pneumatic Tool Hose, Chute & Launder Liner, Skirt Board & Scraper Rubber—Hewitt Rubber Corp.**, 240 Kensington Ave., Buffalo 5, N. Y.
- Clarage Fans—Clarage Fan Co.**, North & Porter Sts., Kalamazoo 16, Mich.
- Clarco Unit Heaters (Propeller Fan Type)—Clarage Fan Co.**, North & Porter Sts., Kalamazoo 16, Mich.
- Clark Axles & Transmissions, Wheels and Booster Engines—The Truckstell Co.**, 1672 Union Commerce Bldg., Cleveland 14, Ohio.
- Clark Industrial Tractors—Clark Tractor Co.**, 114 Springfield Pl., Battle Creek, Mich.
- Clarktor 6 Industrial Tractors—Clark Tractor Co.**, 114 Springfield Pl., Battle Creek, Mich.
- Cleco Air Valves—The Cleveland Rock Drill Co.**, 3781 E. 77th St., Cleveland 5, Ohio.
- Cleioy Wire Screen—The Cleveland Wire Cloth & Mfg. Co.**, 3573 E. 78th St., Cleveland 5, Ohio.
- Cietrac Crawler Tractors—The Oliver Corp., Industrial Division**, 19300 Euclid Ave., Cleveland 17, Ohio.
- Clevaloy Paving Breaker Steels—Cleveland Rock Drill Co.**, 3781 E. 77th St., Cleveland 5, Ohio.
- Cleveland Overhead Traveling Cranes—The Cleveland Crane & Engineering Co.**, 1109 East 283rd St., Wickliffe, Ohio.
- Cleveland Rock Drills—The Cleveland Rock Drill Co.**, 3781 E. 77th St., Cleveland, Ohio.
- Cleveland Speed Reducing Units—The Cleveland Worm & Gear Co.**, 3249 E. 80th St., Cleveland 4, Ohio.
- Cleveland Tramrail Overhead Materials Handling Systems—The Cleveland Crane & Engineering Co.**, 1109 East 283rd St., Wickliffe, Ohio.
- Climate Changer Air Conditioning Unit—The Trane Co.**, 2nd & Cameron Ave., La Crosse, Wis.
- Climax Generating Sets—Climax Industries, Inc.**, 1812 S. 4th St., Clinton, Ia.
- Climax Blue Streak Engines—Climax Industries, Inc.**, 1812 S. 4th St., Clinton, Ia.
- Cling-Surface Belt Dressing—Cling-Surface Co.**, 1032 Niagara St., Buffalo 13, N. Y.
- Clinton Goldstrand Screen Cloth—Wickwire Spencer Steel Co.**, 500 Fifth Ave., New York 18, N. Y.
- Clipper Blast Hole, Prospecting, Well Drilling & Boring Machinery—The Loomis Machine Co.**, 15 E. Market St., Tiffin, Ohio.
- Clipper Lifting, Carrying and Tying Fork Trucks—Clark Tractor Co.**, 114 Springfield Pl., Battle Creek, Mich.
- Clipper Belt Lacing, Lacers, Hooks and Cutters—Clipper Belt Lacer Co.**, 974 Front Ave. N. W., Grand Rapids 2, Mich.
- Clipper Masonry Saws, Portable Hand Hoists, Blades and Abrasive Wheels—Clipper Manufacturing Co.**, 4030 Manchester St., St. Louis 10, Mo.
- Clipper Stripper Concrete Block Machines—Stearns Manufacturing Co., Inc.**, Adrian, Mich.
- Clipper Superior Masonry Saw Cutting Blades—Clipper Manufacturing Co.**, 4030 Manchester St., St. Louis, Mo.
- Clyde-Kuntz Hydrator—Lime & Hydrate Plants Co.**, 232 E. Poplar St., York, Penn.
- C-M Hoists & Cranes—Chisholm-Moore Hoist Corp.**, Tonawanda, N. Y.
- CMC Batching Equipment, Carts, Hoists, Mixers, Pumps, Wheelbarrows—Construction Machinery Co.**, Glenwood & Vinton, Waterloo, Iowa.
- Coaltoter Conveyor—Material Movement Industries**, 310 S. Michigan Ave., Chicago 4, Ill.
- Coast Metals Hard Facing Welding Rods, Special Alloys & Castings, Alloys—Coast Metals, Inc.**, 1232 Camden Ave., S. W., Canton 6, Ohio.
- Coleman XX Refractory Brick—Harbison-Walker Refractories Co.**, Farmers Bank Bldg., Pittsburgh 22, Penn.
- Colmonoy Hard-Facing Alloys—Wall-Colmonoy Corp.**, 714 Fisher Bldg., Detroit 2, Mich.
- Colmonoy WCR 100 Tool Tipping Alloy—Wall-Colmonoy Corp.**, 714 Fisher Bldg., Detroit 2, Mich.
- Colorado Ball, Rod, Tube Mills, Diaphragm Pumps, Crushers, Rolls—Colorado Iron Works**, 1624 17th St., Denver 2, Colo.
- Columbia Calcium Chloride—Pittsburgh Plate Glass Co.**, Columbia Chemical Div., Grant Bldg., Pittsburgh 19, Penn.
- Columbia Dynamite—Equitable Powder Mfg. Co.**, East Alton, Ill.
- Colvuc Plastic Rubber—Manson Glover**, 213 Pleasant, Stoughton, Mass.
- Comet Electric Hoists—Chisholm-Moore Hoist Corp.**, Tonawanda, N. Y.
- Comfo Respirators—Mine Safety Appliances Co.**, Braddock, Thomas & Meade Sts., Pittsburgh 8, Penn.
- Command Brand Sisal Drilling Cable and Sisal Rope—The Edwin H. Fittler Co.**, 5625 Tacony St., Philadelphia 24, Penn.
- Compeb Grinding Mills—Allis-Chalmers Manufacturing Co.**, Milwaukee 1, Wis.
- Concavex Grinding Balls—Allis-Chalmers Manufacturing Co.**, Milwaukee 1, Wis.
- Concenco Classifiers, Feed Distributors, Feeders, Sand Washing Tables, Spray Nozzles—The Deister Concentrator Co.**, 915 Glasgow Ave., Fort Wayne, Ind.
- Conco Cranes, Hoists, Trolleys—Conco Engineering Works (Div. of H. D. Conkey Co.)**, 1501 W. Washington Rd., Mendota 2, Ill.
- Condit Circuit Breakers & Motor Starters—Allis-Chalmers Mfg. Co.**, Milwaukee 1, Wis.
- Condor Belting, Hose, Mechanical Rubber Products—The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc.**, 61 Willett St., Passaic, N. J.
- Condor Homo-Flex Hose—Raybestos-Manhattan, Inc.**, 61 Willett St., Passaic, N. J.
- Cone-Drive Speed Reducers, Gear Sets—Michigan Tool Co.**, Cone-Drive Div., 7171 McNichols Rd., Detroit 12, Mich.
- Conical Mills—Hardinge Co., Inc.**, 240 Arch St., York, Penn.
- Concrete Sika, Integral For Cement—Sika Chemical Corp.**, 35 Gregory Ave., Passaic, N. J.
- Conpass Cord Transmission Belt—The Goodyear Tire & Rubber Co., Inc.**, 1144 E. Market, Akron, Ohio.
- Conservado Protective Coatings—Sika Chemical Corp.**, 35 Gregory Ave., Passaic, N. J.
- Conservo Hose and Belting—Hewitt Rubber of Buffalo, Div. of Hewitt-Robins, Inc.**, 240 Kensington Ave., Buffalo 5, N. Y.
- Conserco Rental Concrete Mixer Trucks—Conserco Co.**, P. O. Box 4056, Chevy Chase, Md.
- Conset Jigs—Allis-Chalmers Manufacturing Co.**, Milwaukee 1, Wis.
- Consolidated Safety & Relief Valves—Manning, Maxwell & Moore, Inc.**, 11 Elias St., Bridgeport 2, Conn.
- Continental Burial Vault Forms—Wilbert W. Haase Co.**, 1015 Troost Ave., Forest Park, Ill.
- Continuflow Asphalt Plants—Pioneer Eng. Works**, 1515 Central Ave., Minneapolis 13, Minn.
- Continuweigh Feeder Scales—Richardson Scale Co.**, Clifton, N. J.
- Contra-Torque Control for AC Bucket Cranes—The Electric Controller & Manufacturing Co.**, 2700 E. 79th St., Cleveland 4, Ohio.
- Conveyco Complete Line of Rock Products Equipment—The Conveyor Co., Inc.**, 3260 E. Slauson Ave., Los Angeles 11, Calif.
- Conveyometer Feeder Scales—Richardson Scale Co.**, Clifton, N. J.
- Convey-o-Weigh Scales—Richardson Scale Co.**, Clifton, N. J.
- Conway Shovel—Goodman Mfg. Co.**, 4834 S. Halsted St., Chicago 9, Ill.
- Cooper-Bessemer Diesel & Gas Engines, Compressors—The Cooper-Bessemer Corp.**, Mt. Vernon, Ohio.
- Coordinated Process Control, A System for Automatic Instrument Control—The Bristol Co.**, Waterbury 91, Conn.
- Copper King Transmission Belting—Pioneer Rubber Mills**, 333 Sacramento St., San Francisco 11, Calif.
- Copper Queen Transmission Belting—Pioneer Rubber Mills**, 333 Sacramento St., San Francisco 11, Calif.
- Coppus Air Filters, Steam Turbines, Fans & Blowers—Coppus Engineering Corp.**, 344 Park Ave., Worcester 2, Mass.
- Coralite High-Alumina Refractory Brick—Harbison-Walker Refractories Co.**, Farmers Bank Bldg., Pittsburgh 22, Penn.
- Corduroy Filter Cloth—The W. S. Tyler Co.**, 3615 Superior St., Cleveland 14, Ohio.
- Corona Conveyors, Block Machines, Hoppers, Mixers—Bob Graveley Industries, Inc.**, 519 Brookhaven Dr., Orlando, Fla.
- Cottonleather Stair Treads & Safety Flooring Material—Southern Friction Materials Co.**, P. O. Box 1475, Charlotte 1, N. C.
- Cottrell Electrical Precipitators, Dust Collectors—Western Precipitation Corp.**, 1016 W. 9th St., Los Angeles 15, Calif.
- Counterflow Dredge Pumps—American Manganese Steel Division of American Brake Shoe Co.**, 377 E. 14th St., Chicago Heights, Ill.
- Cover-All Goggles—Willson Products, Inc.**, 2nd & Washington Sts., Reading, Penn.
- CP Air Compressors, Blts, Couplings, Diesel Engines, Diesel-Generator Sets, Drills and Drilling Accessories, Hoists, Hose, Vacuum Pumps, Vibrators—Chicago Pneumatic Tool Co.**, 6 East 44th St., New York 17, N. Y.
- CP 12 Babbitt Metal—Magnolia Metal Co.**, 18 West Jersey St., Elizabeth 4, N. J.
- Crackerjack A Lightning Belt—The American Rubber Mfg. Co.**, 1145 Park Ave., Oakland 8, Calif.
- Crackerjack Rubber Hose—The American Rubber Mfg. Co.**, 1145 Park Ave., Oakland & Calif.
- Cranemobile Truck Cranes—Bay City Shovels, Inc.**, Bay City, Mich.
- Crater Wire Rope Lubricant—The Texas Co.**, 135 East 42nd St., New York 17, N. Y.
- Crescent Belt Fasteners, Plates, Rivets and Rivet Extractors—Crescent Belt Fastener Co.**, 247 Park Ave., New York 17, N. Y.
- Crescent Conveyor Chain—Link-Belt Co.**, 220 So. Belmont Ave., Indianapolis 6, Ind.
- Crescent Drag Scrapers—Sauerman Bros., Inc.**, 522 S. Clinton St., Chicago 7, Ill.
- Crescent Pipe Molds—Flint & Walling Manufacturing Co., Inc.**, Kendallville, Ind.
- Crocker-Wheeler Motors & Generators—Joshua Hendy Iron Works**, Box 37, Sunnyvale, Calif.
- Crosby Wire Rope Clips—American Hoist & Derrick Co.**, 61 S. Robert St., St. Paul 1, Minn.
- Crown Belting, Hose, Packing—Quaker Rubber Corp.**, Comly & Milnor Sts., Philadelphia 24, Penn.
- C Tyrons Refractory Brick—Harbison-Walker Refractories Co.**, Farmers Bank Bldg., Pittsburgh 22, Penn.
- Cub Portable Belt Conveyors and Loaders—Link-Belt Co.**, 2045 West Hunting Park Ave., Philadelphia 40, Penn.

TRADE NAMES

Cub Variable Speed Transmission—Standard Transmission Equipment Co., 3407 Verdugo Rd., Los Angeles 41, Calif.

Cummers Dryer, Asphalt Plants, Pug Mill Mixers—The F. D. Cummers & Son Co., 608 Keith Bldg., Cleveland 15, Ohio.

Cummins Diesel Engines, Diesel-Electric Generating Sets—Cummins Engine Co., Columbus, Ind.

Curtis Air Compressors, Air Receivers, Air Valves, Holsts, Trolleys—Curtis Mfg. Co., 1988 Kienlen Ave., St. Louis 20, Mo.

Cyclone Blast Hole Drills, Drill Tools, Welded Products—The Sanderson-Cyclone Drill Co., 157 S. Main, Orrville, Ohio.

Cyclone Chain Hoist—Chisholm-Moore Hoist Corp., Tonawanda, N. Y.

Cyclone Wire Cloth—Cyclone Fence Div., American Steel & Wire Co., Waukegan, Ill.

Cyclops Needle Bearing—Roller Bearing Co. of America, Box 480, Trenton 3, N. J.

Cyclotherm Steam Generators—Cyclotherm Corp., 157 E. 1st St., Oswego, N. Y.

Cyclop Conveyors—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

Cylpebs Metallic Grinding Slugs—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

D

D-400 Vibrating Block Machine—Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta, Ga.

Damit Joint Sealing Compound—Quigley Company, Inc., 527 5th Ave., New York 17, N. Y.

Dandie Concrete Mixers—Kwik-Mix Co., Port Washington, Wis.

Daraseal Curling Compound—Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass.

Darex AEA Air Entraining Agent—Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass.

Dart Motor Trucks, Trailers—Dart Truck Co., 2628 Oak St., Kansas City 8, Mo.

Davenport Locomotives—Davenport Besler Corp., 2305 Rockingham Rd., Davenport, Iowa.

Davey Air Compressors—Davey Compressor Co., 266 North Water, Kent, Ohio.

Day Crushers, Pulverizers—Brooks Equipment & Manufacturing Co., 408 Davenport Rd., Knoxville, Tenn.

Dayton Thorobred Tires and V-Belts—Dayton Rubber Mfg. Co., 2342 Riverview Ave., Dayton 1, Ohio.

D'Centegrator Impact Crushers—Simplicity Engineering Co., 213 S. Oak, Durand, Mich.

Dean Refractory Brick—Harbison-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Penn.

Deep-Pan Apron Conveyors—Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.

Defender Instruments, Regulators—Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.

Defender Metal Babbitt Metal—Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.

Deflector Air Separators & Classifiers—Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.

Deister-Overstrom Concentrating Tables—The Deister Concentrator Co., 915 Glasgow Ave., Fort Wayne, Ind.

Deister Rotary Feeders, Hydraulic Classifiers—Deister Machine Co., 1933 E. Wayne St., Fort Wayne, Ind.

DeLaval Centrifugal Blowers, Centrifugal Compressors, Centrifugal Pumps, Steam Turbines, Worm Gear Speed Reducers—DeLaval Steam Turbine Co., Trenton, N. J.

DeLaval IMO Pumps—DeLaval Steam Turbine Co., Trenton, N. J.

De Luxe V-Belt Sheaves—Allis-Chalmers Manufacturing Co., Milwaukee, Wis.

Delva Water Hose—Cincinnati Rubber Mfg. Co., Franklin Ave. & Norwood Station, Cincinnati 12, Ohio.

Deming Pumps—The Deming Co., Salem, Ohio.

Denver Flotation Machines—Flotation Cells—Denver Equipment Co., POB 5268, Denver 17, Colo.

DeVilbiss Air Compressors, Hose, Hose Couplings, Fans, Air Separators—The DeVilbiss Co., 300 Phillips Ave., Toledo, Ohio.

Dex Diesel Exhaust Connections—Chicago Metal Hose Corp., Maywood, Ill.

Dialite High-Alumina Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Diamond Chains, Couplings, Flexible Shafts, Sprockets—Diamond Chain & Manufacturing Co., 402 Kentucky Ave., Dept. 20, Indianapolis, Ind.

Diamond Conveyors, Crushers, Screens, etc.—Diamond Iron Works, Inc., & The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.

Diamond T Motor Trucks—Diamond T Motor Car Co., 4401 W. 26th St., Chicago 23, Ill.

DiBond Cutting Wheels—Stone Machinery Co., Inc., Manlius, N. Y.

Dieselectric Light Plants—Witte Engine Wks., Div. of Oil Well Supply Co., 1600 Oakland Ave., Kansas City 3, Mo.

Dieweld Welding Rods—American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.

Dinamo Babbitt—Magnolia Metal Co., 18 West Jersey St., Elizabeth 4, N. J.

Dings Clutches, Magnetic Separators & Lifting Magnetics—Dings Magnetic Separator Co., 509 E. Smith St., Milwaukee 7, Wis.

Dix-Lock Air Hose Couplings—Dixon Valve & Coupling Co., Hancock St. & Columbia Ave., Philadelphia, Penn.

Dixon Hose Couplings—Dixon Valve & Coupling Co., Hancock St. & Columbia Ave., Philadelphia 22, Penn.

Dodge Jaw Crushers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Dodge Conveying and Power Transmission Equipment—Dodge Manufacturing Corp., 500 S. Union St., Mishawaka, Ind.

Dodge D. H. Ball Bearings—Dodge Manufacturing Corp., 500 S. Union St., Mishawaka, Ind.

Dodge System Coal Storage—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.

Dodge-Timken Roller Bearings—Dodge Manufacturing Corp., 500 S. Union St., Mishawaka, Ind.

Dodson "Red & White Top" Cement Stave Silo—The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kans.

Dodson-McCord Concrete Mixers—The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kans.

Dollinger Air, Gas and Liquid Filters—Dollinger Corp. (formerly Staynew Filter Corp.), 11 Centre Pk., Rochester 4, N. Y.

Dorr, Hydroseparators, Bowl Classifiers & Thickeners—The Dorr Co., 570 Lexington Ave., New York 22, N. Y.

Dorroco Sand Washers, Sizers, Slurry Mixers, Pumps, Sand Washers, and Lime Slakers—The Dorr Co., 570 Lexington Ave., New York 22, N. Y.

Doswell & Kover Concrete Burial Vault Forms—Doswell-Kover, 1821 Howell St., Ft. Wayne 3, Ind.

Double-Crimp Woven Wire Screen—Ludlow-Saylor Wire Co., 600 S. Newstead Ave., St. Louis 10, Mo.

Double Duty Sprocket Wheels—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Dowflake Calcium Chloride—The Dow Chemical Co., Midland, Mich.

Downie Conical Valves, Deep Well Pumps—Keystone Driller Co., 20th St. & 8th Ave., Beaver Falls, Penn.

Dox Floor & Roof System—Cities Fuel & Supply Co., 6639 W. National Ave., West Allis 14, Wis.

Dracco Automatic Filters, Multi-Bag Filters, Pneumatic Conveyors—Dracco Corp., 4043 E. 116th St., Cleveland 5, Ohio.

Drag-On Portable Scraper Conveyors—The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio.

Drageb Liners for Mills—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

Dresser Couplings Pipe Joints—Dresser Mfg. Co., Dresser Industries, Inc., Bradford, Penn.

Drew Slings—MacWhyte Co., 2949 14th Ave., Kenosha, Wis.

Drinkwater Utility Trucks—Industrial Hand Trucks—Drinkwater, Inc., 2323 S. Michigan Ave., Chicago 16, Ill.

Dri-Tite Taraulins & Truck Covers—Bemis Bros. Bag Co., 408 Pine St., St. Louis 2, Mo.

Drumite Vibrating Screen Cloths—The Multi-Metal Wire Cloth Co., 1350 Garrison Ave., New York 59, N. Y.

Dryite Cement Paint—The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kans.

DS Take-Ups for Elevators & Conveyors, Conical Washing Screens, Automatic Sand Separators—Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.

Dual Mix Concrete-Plaster Truck Mixers—Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio.

Duff & Norton Jacks—Duff-Norton Mfg. Co., P. O. Box 1889, Pittsburgh 30, Penn.

Dull Sand & Gravel Washeries, Excavators, Conical Washing Screens, Automatic Sand Separators—Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.

Dumcrete Concrete Handling Truck Body—Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio.

Dumptor Dump Truck—Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.

Dunbrik Concrete Brick Machines—W. E. Dunn Manufacturing Co., Holland, Mich.

Duntex Roof Tile Machines—W. E. Dunn Manufacturing Co., 23 W. 24th St., Holland, Mich.

Duotrol Control Systems—Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Tenn.

DuPont Extra Dynamite—E. I. du Pont de Nemours & Co., Inc., Explosives Dept., N. W. Corner 10th & Market Sts., Wilmington 98, Del.

DuPont Red Cross Dynamite—E. I. du Pont de Nemours & Co., Inc., Explosives Dept., N. W. Corner 10th & Market Sts., Wilmington 98, Del.

Durabelt Conveyor Belts—Robins Conveyors Inc., 2700 Passaic Ave., Passaic, N. J.

Durabil Frogs—L. B. Foster Co., P. O. 1647, Pittsburgh 30, Penn.

Duracord Portable Cable (electrical)—Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.

Durax Non-Metallic Sheathed Cable—Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.

Duro Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Durocrete Floor Hardeners—American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.

Duroil Hose—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo, N. Y.

Durolite Sheave Blocks—Sauerman Bros. Inc., 522 S. Clinton St., Chicago 7, Ill.

Duromit Floor Hardeners—American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.

Dustflee Respirators—Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Penn.

Dustite Filter-Type Respirator—Wilson Products, Inc., 2nd & Washington Sts., Reading, Penn.

Dustube Dust Collectors—American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.

Dymonhard Hard Facing Rods—Dymonhard Corp. of America, 407 Park Square Bldg., Boston 16, Mass.

D-Z-L Babbitt—Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.

E

Eagle Bucket Elevators, Conveyors, Impact Breakers, Jaw Crushers, Limestone Pulverizers, Material Bucket Loaders, Screw Washers, Screw Classifiers, Screw Dehydrators, Screw Re-washers, Paddle Flight Washers, Scrubbers, Log Washers, Sand Settling Tanks, Dry and Wet Pans, Shale Planers, Revolving Trunnion Screens—Eagle Crusher Co., Inc., 900 Harding Way East, Gallon, Ohio.

Eagle Washers, Classifiers, Dehydrators, Dry & Wet Pans, Grinders, Sand Tanks, Log Washers, Shale Planers, Double-Roll Primary Crushers, Cinder Crushers, Coal Crushers—Eagle Iron Works, 129 Holcomb, Des Moines 4, Iowa.

Eagle Swintek Nozzle Ladders—Eagle Iron Works, 129 Holcomb, Des Moines, Iowa.

Easton White Solid Woven Cotton Belting—Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y.

Easton Cars, Truck Bodies & Trailers—Easton Car & Construction Co., Box 270, Easton, Penn.

Eaton Two-Speed Axles—The Truckstell Co., 1672 Union Commerce Bldg., Cleveland 14, Ohio.

Ebonite Hose and Packing—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

Ebro Dryers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

E. C. & M.—Brakes, Motor Starters, Separator Magnets—The Electric Controller & Mfg. Co., 2700 E. 79th St., Cleveland 4, Ohio.

Eclipse Concrete Block Machines, Power Tampers, Continuous Mixers, 3 1/2-S Mixers—Geo. C. Christopher & Son Iron Wks., 1220 Blaine, Wichita 1, Kan.

Economy Pumps—Economy Pumps, Inc., 1000 Weller Ave., Hamilton, Ohio.

Economy Welding Rod—American Manganese Steel Div. of American Brake Shoe Co., 389 E. 14th St., Chicago Heights, Ill.

Econotrol Multi-Speed-Pressure Control for Compressors—Le Roi Co., 1706 S. 68th St., Milwaukee 14, Wis.

Edgar's Block & Tile Machines, Mixers, Belt Conveyors, Batching Hoppers—Edgar's Block Machine Wks., 240 W. Granada Ave., Ormond, Fla.

Edison Electric Cap Lamps—Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Penn.

Egyptian Black Powder—Equitable Powder Mfg. Co., East Alton, Ill.

800 Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Elmco Continuous Vacuum Filters & Dryers—The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah.

TRADE NAMES

Elmco Slurry Filters and Loaders—The Elmco Corp., P.O. Box 300, Salt Lake City 8, Utah.

Eitherend Cable Connector—Albert & J. M. Anderson Mfg. Co., 291 A Street, Boston 10, Mass.

Elastic Stop Nuts—Self-Locking Nuts—Elastic Stop Corp. of America, 2330 Vauxhall Road, Union, N. J.

Electric Ear Sound Feed Control Unit—Hardinge Co., Inc., 240 Arch St., York, Penn.

Electrifugal Pump Units—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Electrofluid Motorized Hydraulic Drives—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.

Electro Lift Electric Hoists—Electro Lift, Inc., 30 Church St., New York 7, N. Y.

Electromode Electric Air Heaters—American Foundry Equipment Co., 439 S. Byrkit St., Mishawaka, Ind.

Elektronik Pyrometer—The Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia 44, Penn.

Electronite Boiler Tubes—Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio.

Electronite Steeltubes Conduit Pipe—Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio.

1100 Chains—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Eliplex Vibrating Screens—Robins Conveyors Inc. (Div. of Hewitt-Robins Inc.) Passaic Ave., Passaic, N. J.

Ellernan Calciners, Coolers, Kilns, Pre-heaters—Ellernan Co., 203 Continental Bank Bldg., Salt Lake City 1, Utah.

Elverite Castings, Balls—The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.

Elwell Parker Power Industrial Cranes, Trucks, Tractors—The Elwell Parker Electric Co., 4205 St. Clair Ave., Cleveland 14, Ohio.

Embecco Foundation Waterproofing—The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio.

Emerson-Electric Power Motors, Fans & Blowers—The Emerson Electric Mfg. Co., 1824 Washington Ave., St. Louis 3, Mo.

Enterprise Castings, Oil Burners, Diesel Engines, Process Machinery—Enterprise Engine & Foundry Co., 18th & Florida Sts., San Francisco 10, Calif.

EP Industrial Cranes, Trucks, Tractors—The Elwell Parker Electric Co., 4205 St. Clair Ave., Cleveland 14, Ohio.

Equator Conveyor & Elevator Belts—Robins Conveyors Inc. (Div. of Hewitt-Robins, Inc.) Passaic Ave., Passaic, N. J.

Erickson Power Lift Trucks—Erickson Special Equipment Mfg. Co., 2631 Ulysses St., N. E., Minneapolis 13, Minn.

Erie Overhead Electric Cranes, Clamshell & Dragline Buckets, Agrometer Plants, Central Mixing Plants, Steel Storage Bins—Erie Steel Construction Co., Geist Road & NKP Railroad, Erie, Penn.

Erie Aggremeters Weighing Batches—Erie Steel Construction Co., Geist Road & NKP Railroad, Erie, Penn.

Erie Aggremeters Plants Bins & Batches—Erie Steel Construction Co., Geist Road & NKP Railroad, Erie, Penn.

Eriez Non - Electric Magnetic Separators & Permanent Magnets—Eriez Mfg. Co., E. 12th St., Erie, Penn.

Eeco All Equipment—Electric Steel Foundry Co., 2141 N. W. 25th Ave., Portland 10, Oregon.

Eena Nuts—Elastic Stop Nut Corp of America, 2330 Vauxhall Rd., Union, N. J.

Eternit Asbestos Pipe, Corrugated Asbestos—The Ruberoid Co., 500 Fifth Ave., New York, N. Y.

E-240 Hose—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

Euclid Trucks, Loaders, Tractors & Semi-Trailers—The Euclid Road Machinery Co., 1361 Chardon Rd., Cleveland 17, Ohio.

Evansteel Abrasive Resisting Castings—Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill.

Everdur Welding Rod—The American Brass Co., 2114 Meadow, Waterbury 88, Conn.

Eveready Batteries—National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.

Everwear Conveyor & Elevator Belts—Robins Conveyors Inc. (Div. of Hewitt-Robins, Inc.) 270 Passaic Ave., Passaic, N. J.

Ewart Detachable Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Exbiter Extractors—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

Executive Intercommunicating Systems—Executive, Inc., 415 Lexington Ave., New York 17, N. Y.

Exide Batteries—Electric Storage Battery Co., 19th St. & Allegheny Ave., Philadelphia 32, Penn.

F

Faceweld Arc Welding Electrode—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.

Fairmount Single Roll Anvil Crushers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Farrel Gear Drives, Speed Reducers—Farrel-Birmingham Co., Inc., 25 Main St., Ansonia, Conn.

Farrel-Bacon Crushers—Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.

Farrel-Bacon Crushers—Farrel-Birmingham Co., Inc., Ansonia, Conn.

Farrell's 85 Cast Steel—Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio.

Farrell's Hard Edge Cast Steel—Farrell-Cheek Steel Co., P.O. Box 721, Sandusky, Ohio.

Farrel-Sykes Gears—Farrel-Birmingham Co., Inc., Ansonia, Conn.

Farval Lubricating Systems—The Farval Corp., 3249 East 80th St., Cleveland 4, Ohio.

Faultless Conveyor Belts—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

FeatherSpec Plastic Goggles—Willson Products, Inc., 2nd & Washington Sts., Reading, Penn.

Federal Ball Bearings—Federal Bearings Co., 200 Fairview Ave., Poughkeepsie, N. Y.

Feeder Vibrating Pan Conveyors—The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio.

Feedometer Feeders—Hardinge Co., Inc., 240 Arch St., York, Penn.

Feedoweight Weight Feeders—Merrick Scale Manufacturing Co., 180 Autumn St., Passaic, N. J.

Fentonia Cotton Belting—Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J.

Ferroweld Arc Welding Electrode—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.

Fidelity Transmission Belt—Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio.

Fireset Refractory Cement—Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

Firestone Truck Tires, Tubes, Rims, Velon, Batteries, Brake Linings—Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron 17, Ohio.

Fisher Centrifugal Blowers—Fisher Furnace Co., 5535 N. Wolcott Ave., Chicago 40, Ill.

Fittler No. 1 Jute Rope—The Edwin H. Fittler Co., 5625 Tacony St., Philadelphia 24, Penn.

500 Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Flame-Otol Combustion Safeguard—Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

Flang-Lok Flexible Rubber Pipe & Flanges—Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia, Penn.

Flatget Nozzles—Spraying Systems Co., 4021 W. Lake St., Chicago 24, Ill.

Flat-Roll Belt Conveyor Idlers—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Flat-Top Woven Wire Screen—Ludlow-Saylor Wire Co., 600 S. Newstead Ave., St. Louis 10, Mo.

Flat-Top Screen Cloth—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Flat-Top Conveyor Chains—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Flat-Top Woven Wire Screens—The Ludlow-Saylor Wire Co., Newstead Ave. & Wabash R. R. St. Louis 10, Mo.

Fleatrac AC Welders—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.

Fleet-Foot Crane-Loader—Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio.

Fleetweld Arc Welding Electrode—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.

Flexco HD Belt Fasteners for Conveyor and Elevator Belts—Flexible Steel Lacing Co., 4607-31 Lexington St., Chicago 44, Ill.

Flexco-Lok Lamp Guards—Flexible Steel Lacing Co., 4607-31 Lexington St., Chicago 44, Ill.

Flexicord Transmission Belt—Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio.

Flexicore Floor & Roof Slabs—Flexicore Co., Inc., 220 E. 42nd St., New York, N. Y.

Flexmore Balata Belting—Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y.

Flexloc Locknut—Standard Pressed Steel Co., Jenkintown, Penn.

Flexpin Flexible Couplings—Smith & Serrell, Inc., 15 Washington St., Newark 2, N. J.

Flex Set Preformed Wire Rope—Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.

Flextooth Crushers—The Jeffrey Manufacturing Co., 935-99 N. 4th St., Columbus 16, Ohio.

Flex V V-Belt Fasteners—Flexible Steel Lacing Co., 4607 Lexington St., 44, Ill.

Flink Spreaders—Flink Co., 502 North Vermillion St., Stretort, Ill.

Flintalloy Alloys for Dredge & Slurry Pumps Wearing Parts—Morris Machine Works, 31 Genesee St., Baldwinville, N. Y.

Flintmetal Alloys for Dredge & Slurry Pumps Wearing Parts—Morris Machine Works, 31 Genesee St., Baldwinville, N. Y.

Flint-Rim Sprocket Wheels—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Floatex Foundry Shakeouts—Robins Conveyors Inc., 270 Passaic Ave., Passaic, N. J.

Flo-Dyn Explosives—Atlas Powder Co., Wilmington 99, Del.

Flourmeter Fineness Determinator—F. L. Smidth & Co., 60 East 42nd St., New York 17, N. Y.

Flo-Watch Flow Meters—Builders-Providence, Inc., 9 Coddling St., Providence 1, R. I.

Flur-Dry Waterproof Surface Coatings—American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.

Fluresal Waterproof Surface Coatings—American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.

Fluresit Hardener & Waterproofing Material—American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.

Flurostone Floor Hardeners—American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.

Fluretux Waterproof Surface Coatings—American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.

Fluxo Packers—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

Forsterite Refractory Brick—Harblison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Formula No. 640 Waterproofing—Haynes Products Co., 4007 Farnam St., Omaha 3, Neb.

400 Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

4-Way Reversible & Interchangeable Screen Decks—Allis-Chalmers Manufacturing Co., 1945 Prodrac St., Milwaukee, Franklin Crown Refractory Brick—Harblison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Freeflow Conveyors, Feeders—Standard Transmission Equipment Co., 3407 Verdugo Rd., Los Angeles 41, Calif.

Free-Vane Electronic Controller—The Bristol Company, Waterbury 91, Conn.

Free-Vane Electronic Controller—The Bristol Company, Waterbury 91, Conn.

Freeze-All Home Freezers—Portable Elevator Mfg. Co., 920 E. Grove St., Bloomington, Ill.

Friction Fighter Ball & Roller Bearings—Link-Belt Co., 519 North Holmes Ave., Indianapolis 6, Ind.

Full Flow Engine Jacket Water Coolers—Young Radiator Co., 709 S. Marquette St., Racine, Wis.

Fuller Air-Quenching Inclined Grate Coolers, Cement Coolers, Material Level Indicators, Rotary Compressors, Rotary Feeders, Rotary Vacuum Pumps, Rotary Gate Valves—Fuller Co., Fuller Bldg., Catsaqua, Penn.

Fuller Transmissions—Fuller Manufacturing Co., Kalamazoo, Mich.

Fuller-Anderson Samplers for Pulverized Materials—Fuller Co., Fuller Bldg., Catsaqua, Penn.

Fuller-Fluxo Conveying Systems—Fuller Co., Fuller Bldg., Catsaqua, Penn.

Fuller-Kinyon Conveying Systems—Fuller Co., Fuller Bldg., Catsaqua, Penn.

Fullget Nozzles—Spraying Systems Co., 4021 W. Lake St., Chicago 24, Ill.

Fulscope Recorders & Controllers—Taylor Instrument Co., 95 Ames St., Rochester, N. Y.

Furnas Crete Castable Refractories—Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.

F.W.D. Trucks, Winches—The Four Wheel Drive Auto Co., Clintonville, Wis.

Fyre-Mortar Dry Refractory Cement—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.

G

Galliger Slurry Agitators & Thickeners—The Galliger Co., 48 S. 2nd East, Salt Lake City 1, Utah.

Ganiland Granular Refractory Aggregate—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.

Gar-Bro Equipment, Aggregates & Concrete Plants—Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.

Gar Wood Hoists & Bodes, Winches, Cranes, Tanks, Oil Burners, Air Condition Boats—Gar Wood Industries, Inc., 7924 Ripelle St., Detroit 11, Mich.

Garfield Crushing Rolls—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

TRADE NAMES

Gascon Oils—Sinclair Refining Co., 630 5th Ave., New York, N. Y.

Gates Gyratory Crushers, Feeders, Revolving Screens—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Gates Steel Cable Ropes V-Belts, Steel Cable Tensile Members—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Gates Vulcomount, Multi-Duty Sheaves—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Gates Truflex V-Belts—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Gates Vulco Rope Drives, V-Belt Drives—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Gates Vulco Tires & Tubes—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Gates Vulco V-Belts, Hose—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Gayco Centrifugal Air Separators—Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y.

Geararmor Gear Lubricant—The Hodson Corp., 5301-11 W. 66th St., Chicago 38, Ill.

Gearflex Couplings—Farrel-Birmingham Co., Inc., Ansonia, Conn.

Gearkote Gear Lubricant—The Hodson Corp., 5301-11 W. 66th St., Chicago 38, Ill.

Geary Flotation Reagent Feeders—The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah.

Geary-Jennings Samplers Sampling Equipment—The Galigher Co., 48 S. 2nd East St., Salt Lake City 1, Utah.

Gelamite Special Dynamite—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Gelodyn Explosives—Atlas Powder Co., Wilmington 99, Del.

The General Side-Entering Agitator—H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

General Power Shovels, Cranes—The Osgood Co., The General Excavator Co., Marion, Ohio.

George Super "V" Block Machine, Conveyors, Mixers, Pallets—F. C. George Machine Co., 160 S. Westmoreland Dr., Orlando, Fla.

Gilbert Revolving Screens—Stephens-Adams Manufacturing Co., 7 Ridgeway Ave., Aurora, Ill.

Gilmer V-Belts—L. H. Gilmer Co., Div. of United States Rubber Co., Tacony, Philadelphia 35, Penn.

Gilmer Kable Kord Flat Belts and Belting—L. H. Gilmer Co., Div. of United States Rubber Co., Tacony, Philadelphia 35, Penn.

Gilmer Streamliner V-Belting—L. H. Gilmer Co., Tacony, Philadelphia 35, Penn.

Gilson Testing Screen for Aggregates—The Gilson Screen Co., P. O. Box 186, Mercer, Penn.

GL Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Glaze-ite Cover Glass—Willson Products, Inc., 2nd & Washington Sts., Reading, Penn.

Glyco Babbitt Metals—Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

Gold Medal Dynamite—Illinois Powder Manufacturing Co., 730 Pierce Bldg., St. Louis 2, Mo.

Golden Gate Conveyor & Elevator Belting—Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Gondola Car Dumpers—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Goodall Conveyor Belting & Pump Diaphragms & Steam Hose—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

Graco Lubricating Equipment—Gray Co., Inc., Graco Squ. Minneapolis 13, Minn.

Graham Variable Speed Transsion—Graham Transmissions, Inc., 3854 N. Holton St., Milwaukee 12, Wis.

Gravelmaster Gravel Plants—Universal Engineering Corp., 625 C Ave. N.W., Cedar Rapids, Iowa.

Gravity Springs Spring Suspensions—Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo 14, N. Y.

Grco Silliminite Super Duty Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Gredag Lubricating Grease—Gredag, Inc., P. O. Box 898, Niagara Falls, N. Y.

Grefco High Temperature Cement—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Grey-Rock Brake Lining, V-Belts, Fan Belts—Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.

Griffin Grinding Mills—Bradley Pulverizer Co., 123 S. Third St., Allentown, Penn.

Grizzly Crawler Bucket Loaders—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.

Groch Flotation Machines—Groch Engineering Co., 1282 W. 2nd St., Los Angeles 26, Calif.

Gyrex Vibrating Screens—Robbins Conveyors Inc., (Div. of Hewitt-Robins, Inc.), 270 Passaic Ave., Passaic, N. J.

Gyrocoll Electric Blasting Caps—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Gyroset Vibrating Screens—Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill.

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H Elevating & Conveying Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Hammond Screw Conveyors & Elevator Buckets—Screw Conveyor Corp., 700 Hoffman St., Hammond, Ind.

Hancock Globe Valves—Manning, Maxwell & Moore, Inc., 11 Pine St., Bridgeport 2 Conn.

Hancock Jigs—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Handi Winch Hand Power Winch—American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.

Hard Boiled Protective Hats—E. D. Bullard Co., 275 8th St., San Francisco 3, Calif.

Hardhead Diamond Bits—J. K. Smit & Sons, Inc., 157 Chambers St., New York 7, N. Y.

Hardweld Arc Welding Electrode—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.

Harris Steel Woven Wire Screen Cloth—Harris Steel Products Co., 420 Lexington Ave., New York 17, N. Y.

Harward Bond Refractory Mortar—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Harz Jigs—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Hascrome Hard-Facing Welding Rods—Haynes Stellite Co., Harrison & Lindsay Sts., Kokomo, Ind.

Hastelloy Corrosion-Resisting Alloy—Haynes Stellite Co., Harrison & Lindsay Sts., Kokomo, Ind.

Haydite Lightweight Aggregate—John H. Black Co., Buffalo, N. Y.; The Carter-Waters Corp., 2440 Pennway, Kansas City, Mo.; Hydraulic-Press Brick Co., St. Louis, Mo.; Hydraulic-Press Brick Co., South Park, Ohio; McNear Co., San Rafael, Calif.; Washington Haydite and Concrete Products Co., Bothell, Wash.; Western Brick Co., Danville, Ind.

Haynes Stellite Hard-Facing Rods—Haynes Stellite Co., Harrison & Lindsay Sts., Kokomo, Ind.

Haystellite Diamond Substitute for Drilling Tools—Haynes Stellite Co., Harrison & Lindsay Sts., Kokomo, Ind.

Hazacord Portable Cables—The Okonite Co., Passaic, N. J.

Hazard Wire Rope—American Chain & Cable Co., Inc., Bridgeport 2, Conn.

HCH Cement Hardener—Haynes Products Co., 4007 Farnam St., Omaha 3, Neb.

Hearth & Baffle Mix Castable Refractory—Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

Hearth-Crete Castable Refractory—Quigley Company, Inc., 527 5th Ave., New York 17, N. Y.

Heavy-Duty Rock and Gravel Crushers—Gruendler Crusher & Pulverizer Co., 2915-17 North Market St., St. Louis, Mo.

Hedgard Safety Hat—Davis Emergency Equipment Co., Inc., 45 Halleck St., Newark 4, N. J.

Helicoid Screw Conveyors—Link-Belt Co., 2410 West 18th St., Chicago 8, Ill.

H.E.L.S. Cyclones—The Northern Blower Co., 6409 Barborton Ave., Cleveland, Ohio.

Hendrick Perforated Metals & Screen Plates—Hendrick Mfg. Co., 39 Dundaff St., Carbon-dale, Penn.

Hendy Grinding Mills, Cars, Castings, Crushers, Engines, Dredges, Dryers, Pumps, Speed Reducers—Joshua Hendy Iron Works, Box 37, Sunnyvale, Calif.

Her-Born Block Machines and Industrial Coal Stokers—The Her-Born Engr. & Mfg. Co., Box 666, Sandusky, Ohio.

Hercogel Special Dynamite—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Hercumite Special Dynamite—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Hercules Belt Idlers, Chains—The Jeffrey Manufacturing Co., 935-99 N. 4th St., Columbus 16, Ohio.

Hercules Belting, Hose, Packing—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

"Hercules" Cement Body—Hercules Steel Products Co., Gallon, Ohio.

Hercules Crushers—Gruendler Crusher & Pulverizer Co., 2915-17 North Market St., St. Louis, Mo.

Hercules Dump Bodies and Hydraulic Hoists, Split-Shaft Power Take-Offs—Hercules Steel Products Co., Gallon, Ohio.

Hercules Dynamite—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Hercules Engines & Power Units—Hercules Motors Corp., 201 11th St., S.E., Canton 2, Ohio.

Hercules Grinding Mills—Bradley Pulverizer Co., 123 S. Third St., Allentown, Penn.

Hercules, Jr. Grinding Mills—Bradley Pulverizer Co., 123 S. Third St., Allentown, Penn.

Hercules Hoists—Columbus McKinnon Chain Corp., Tona-wanda, N. Y.

Hercules Hydraulic Hoists & Dump Truck Bodies—Hercules Steel Products Co., Gallon, Ohio.

Hercules No-Vent Electric Blasting Caps—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Hercules Powerchute Portable Conveyors (Hydraulic)—Hercules Steel Products Co., Gallon, Ohio.

Hercules Shaft Hangers—Sprout, Waldron & Co., Muncy, Penn.

Hercules Red-Strand Wire Rope—A. Leschen & Sons Rope Co., 5909 Kennerly Ave., St. Louis, Mo.

Herculite Special Dynamite—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Herrington Speed Reducers—Link-Belt Co., 2045 Hunting Park Ave., Philadelphia 40, Penn.

Hex-Top Grease Cups—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Hi Electrical Equipment and Supplies—Holub Industries, Inc., 413 DeKalb Ave., Syracuse, Ill.

Hiac Super Duty Brick—General Refractories Co., 1600 Real Estate Bldg., Philadelphia 7, Penn.

Hi-Caste Diamond Core Bits—J. K. Smit & Sons, Inc., 157 Chambers St., New York 7, N. Y.

Hifire Bond Refractory Cement—The Denver Fire Clay Co., P. O. Box 5510, Denver 17, Colo.

High Duty Magnetic Pulleys and Separators—Stearns Magnetic Manufacturing Co., 675 S. 28th St., Milwaukee 4, Wis.

High Grade XX Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Highland Truck and Trailer Bodies and Truck Cabs—The Trailer Company of America, 31st & Robertson Ave., Cincinnati, Ohio.

High-Speed Transmission Belting—Thermold Co., Whitehead Rd., Trenton 6, N. J.

Hi-Id-Si Belting—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

Hi-Lastic Drill Line—Mac-whythe Co., 2949 14th Ave., Kenosha, Wis.

Hiico Oil Filters—The Hillard Corp., 400 W. Fourth St., El-mira, N. Y.

Hill Drum Type Continuous Mixers—Hill Mfg. Co., 1144 N. Fourth St., Columbus 1, Ohio.

Hilliard Clutches—The Hillard Corp., 400 W. Fourth St., El-mira, N. Y.

Hilo-Chrome Bonding Mortar—Mexico Refractories Co., Better Refractories Bldg., Mexico, Mo.

Hiloset High Temperature Bonding Mortar—Mexico Refractories Co., Love & Cole St., Mexico, Mo.

Hi-Lumite Fire Brick, Kiln Liners—Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

Hi-Power Clamshell Buckets—George Haiss Mfg. Co., Inc., Park Ave., & 143rd St., New York 51, N. Y.

Hi-Velocity Gelatin Dynamite—E. I. duPont de Nemours & Co., Inc. N.W. corner 10th & Market Sts., Wilmington 38, Delaware.

Hobart Welding Machines and Equipment, Welding Rods and Electrodes—Hobart Bros. Co., Hobart Square, Troy, Ohio.

Hog Scraper Chains—Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.

Homo Electric Furnaces—Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.

Homocarb Electric Furnaces—Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.

Homocord Conveyor Belting—The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.

Homo-Flex Hose—The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.

Horton Steel Tanks—Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago 4, Ill.

Howe Scales—The Howe Scale Co., Rutland, Vt.

Humidigraph Direct-Reading Humidity Recorder—Bristol Co., Waterbury 91, Conn.

Hum-Mer Electric Screens—The W. S. Taylor Co., 3615 Superior St., Cleveland 14, Ohio.

Hump Electric Furnaces—Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.

H-W Crown Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

H-W Special Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

TRADE NAMES

H-W Special H. A. High-Alumina Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
 Hyalite High Alumina, Super-Refractory Brick—Quigley Co., Inc., 527 Fifth Ave., New York
 Hyatt Roller Bearings—Hyatt Bearings Div., General Motors Corp., Harrison, N. J.
 Hydra-Pulse Vibrators & Feeders—Syntron Co., 450 Lexington Ave., Homer City, Penn.
 Hydrex Screens—Robins Conveyors Inc., 270 Passaic Ave., Passaic, N. J.
 Hydroseal Sand, Slurry & Dredge Pumps—The Allen-Sherman-Hoff Co., 1435 Locust St., Philadelphia 2, Penn.
 Hydrojet Hydraulic Ash Handling Systems for Power Plants—The Allen-Sherman-Hoff Co., 1435 Locust St., Philadelphia 2, Penn.
 Hydrovac Pneumatic Materials Handling Systems—The Allen-Sherman-Hoff Co., 1435 Locust St., Philadelphia 2, Penn.
 Hydro-Bin Dewatering Storage Bins—The Allen-Sherman-Hoff Co., 1435 Locust Street, Philadelphia 2, Penn.
 Hydroelectric Lift Truck—Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio.
 Hydromatic Lift Trucks—Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio.
 Hydrocide Powder Admixtures, Curing Compounds—L. Sonneborn Sons Inc., 88 Lexington Ave., New York 16, New York.
 Hygrade Speed Reducers, Worm Reducers—Foote Bros. Gear & Machine Corp., 5225 S. Western Blvd., Chicago 9, Ill.
 Hy-Lift Platform & Fork Trucks—The Baker-Raulang Co., 2168 West 25th St., Cleveland 13, Ohio.
 Hy-Lo Crimp Screens—John A. Roebling's Sons Co., 640 Broad St., Trenton 2, N. J.
 Hy-Power Hydraulic Jacks—The Duff-Norton Mfg. Co., P.O. Box 1889, Pittsburgh 30, Penn.
 Hyster Towing Winches, Tractor Donkeys, Logging Archers, Tractor Cranes, Lift Trucks, Straddle Trucks, Mobile Cranes—Hyster Co., 2938 N. E. Clackamas, Portland 8, Oregon.
 Hystevator Ditcher—Hyster Co., 2938 N. E. Clackamas, Portland 8, Oregon.
 Hytemplate High Temperature Cement—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Hytork Synchronous Motors—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Ideal Wire Connectors, Blowers, Cleaners, Dust Collectors, Tachometers—Ideal Commutator Dresser Co., Park & Borden Aves., Sycamore, Ill.
 Ideal Wire-Nuts Wire Connectors—Ideal Commutator Dresser Co., Park & Borden Aves., Sycamore, Ill.
 IG Gears—Industrial Gear Mfg. Co., 4544 W. Van Buren St., Chicago 24, Ill.
 Igo Dampproofing Compound, Asphaltic Paint—Silka Chemical Corp., 35 Gregory Ave., Passaic, N. J.
 Illinois Blasting Caps—Illinois Powder Manufacturing Co., 730 Pierce Bldg., St. Louis 2
 Ime Pumps—Detaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
 Imperial Asbestos Pipe Covering—The Ruberoid Co., 500 Fifth Ave., New York, N. Y.
 Improved Super-Gyratrol Screen Cloth—Robins Conveyors Inc., 270 Passaic Ave., Passaic, N. J.
 Impulse-Sequence Time Cycle Controller—The Bristol Company, Waterbury 91, Conn.
 In-cel-ate Insulating Cement—Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.

Incher Electric Motor Controls—Electric Machinery Mfg. Co., 1331 Tyler St., N. E., Minneapolis 13, Minn.
 Independent Dynamite—Independent Explosives Co., 455 Leader Bldg., Cleveland 14
 Indian Brand Manganese Steel Castings—The Frog Switch & Manufacturing Co., Carlisle, Penn.
 Industrial Brand Rubber Boots—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.
 Industrial Gears—Industrial Gear Mfg. Co., 4544 W. Van Buren St., Chicago 24, Ill.
 Industrial Toe-Saver Rubber Boots—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.
 Industrialair Stationary Air Compressor—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.
 Inferno Steam Hose—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.
 Ingersoll-Rand Air Compressors, Vacuum Pumps, Rock Drills, Drill Sharpeners, Oil Furnaces, Pneumatic Tools—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Insley Cranes, Concrete Handling Equipment, Cars, Carts, Hoppers, Draglines, Hoists, Loaders, Shovels, Skip Buckets—Insley Manufacturing Co., Indianapolis, Ind.
 Instagraph Electronic Recorder Responsive to the Thermal Spectrum—The Bristol Company, Waterbury 91, Conn.
 Insulag Refractory Lining—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Insulbiox Refractory Block Insulation—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Insulbond Insulbrix Bonding Mortar—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Insulbrix Insulating Refractory Brick—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Insulclad Plastic Surface Coating for Insulating Refractories—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Insulcrete Castable Refractory—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Insuline-Ground Insulating Refractory Powder—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Insuline-Sized Aggregate Insulating Refractory Aggregate—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
 Insulmort, Insulating Brick Cement—Walsh Refractories Corp., 4070 N. 1st St., St. Louis 7, Mo.
 Inswell Chains—Columbus McKinnon Chain Corp., Tonawanda, N. Y.
 International Cars, Exhausts, Fans & Blowers, Ventilating Equipment—International Engineering Inc., 1145 Bolander, Dayton, Ohio.
 International Trucks, Tractors, Engines & Power Plants—International Harvester Co., 180 N. Michigan Ave., Chicago 1
 Interno Bucket Elevators—Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.
 IPCO Safety Equipment—The Industrial Products Co., 2705 N. Fourth St., Philadelphia
 Iron Oilite Bearings & Cored, Bar & Plate Stock—Chrysler Corp., Amplex Div., 6501 Harper Ave., Detroit 11, Mich.
 Ironsides Belting, Hose—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.
 Isorod Self-Hardening Welding Rod—The Resisto-Loy Co., 127 Baylis St., Grand Rapids 7, Mich.
 I-T-E Circuit Breakers, Relays and Switches—I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Philadelphia 30, Penn.
 Itelite Small Electric Circuit Breakers—I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Philadelphia 30, Penn.
 IXL Gears—Foote Bros. Gear & Machine Corp., 5225 S. Western Blvd., Chicago 9, Ill.

Jackbit Drill Bits—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Jackfurnace Furnaces—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Jackhammer Hand-Held Rock Drills—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Jackmill Hot Milling Machines—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Jackrod Drill Rods—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
 Jaeger-Lakewood Paving Equipment—Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio.
 Jaybee Super Fire Brick—Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
 J.B.T. Electrical & Temperature Measuring Instruments—J.B.T. Instruments, Inc., 441 Chapel St., New Haven, Conn.
 Jeffrey-Traylor Coolers, Dryers, Feeders, Screens—The Jeffrey Manufacturing Co., 935-99 N. 4th St., Columbus 16, Ohio.
 Jersey Wire Cloth (Oblong Mesh, Steel), Screens (Vibrator, Shaker, Gravity, Revolving)—John A. Roebling's Sons Co., 6408 S. Broad St., Trenton 2, N. J.
 JFS Variable Speed Transmission—Stephens-Adamson Manufacturing Co., 7 Ridgeway, Aurora, Ill.
 JFS-JR Variable Speed Transmission—Standard Transmission Equipment Co., 3407 Verdugo Rd., Los Angeles 41, Calif.
 Jigger Vibrating Screens—Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill.
 Johnson Process Electrostatic Separators, Classifiers & Sizers—Ritter Products Corp., Ritter Park, Rochester 3, N. Y.
 Joltcrete Concrete Block Machines—Stearns Mfg. Co., Inc., Adrian, Mich.
 Judson Steam Hose—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.
 Jumbo Hammer Crushers—Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.
 Jumbo Jr. Crushers—Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis, Mo.
 Junior Tandem Portable Crushing Plant—Iowa Manufacturing Co., 916 16th St., N.E., Cedar Rapids, Iowa.

K-2 Motor Winch—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 K-5 Motor Winch—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
 Kable Kord Rubber Fabric Belting—L. H. Gilmer Co., Tacony, Philadelphia, Penn.
 Kadco Portable Dust Collectors for Rock Drilling Operations—Complete Machinery & Equipment Co., Inc., 36-40 Eleventh St., Long Island, N. Y.
 Kaplan Hydraulic Turbines—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
 Karbate Heat Exchangers—National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.
 Karry Krane Mobile Cranes—Hyster Co., 2938 N. E. Clackamas, Portland 8, Ore.
 Kelco Cutting Oil—Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.
 Kellogg-American Air Compressors (Motor & Engine Driven)—Kellogg Div., American Brake Shoe Co., 97 Humboldt St., Rochester 9, N. Y.
 Kenmore Refractory Brick—Harbison-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Penn.
 Kennedy Gyrotory Crushers, Ball Mills, Tube Mills & Rod Mills—Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York 16, N. Y.

Kent Filter Air Separator—Kent Mill Co., 10 Rapelye St., Brooklyn 31, N. Y.
 Kent Mill Pulverizer—Kent Mill Co., 10 Rapelye St., Brooklyn, 31, N. Y.
 Kent Standard 4 Bar Tamp Hand Strippers & Concrete Mixers—Kent Machine Co., Cuyahoga Falls, Ohio.
 Keycut Cutting Oil—Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.
 Keylubric Air Tool Lubricant—Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.
 Keystone Ball Bearing Conversion Endbells for Electric Motors—Keystone Electric Co., 1220 Ridgely St., Baltimore 30, Md.
 Keystone Blast Hole Drills, Cranes, Drilling, Tools, Excavators, Power Shovels—Keystone Driller Co., 20th St. & 8th Ave., Beaver Falls, Penn.
 Keystone Canvas-Stitched Belting—Manheim Manufacturing & Belting Co., Manheim, Penn.
 Keystone Lubricants, Lubricating Devices—Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.
 Kiesler Clamshell Bucket—Joseph F. Kiesler Co., 938 W. Huron St., Chicago, Ill.
 Kilind Wire Rope—Macwhyt Co., 2906-14th Ave., Kenosha, Wis.
 King Hose Clamps and Couplings—Dixon Valve & Coupling Co., Hancock St. & Columbia Ave., Philadelphia, Penn.
 Klipfel Valves—Economy Pumps, Inc., 1000 Weller Ave., Hamilton, Ohio.
 Kirkham Concrete Block Machines—Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo.
 Kirkham Vibrator Block Machine—Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
 Kissan-Blatt Controlled Oscillation Block Machine—Frank I. Blatt Sales Co., Inc., Rattlesnake, Fla.
 Kleenseal Grease Fittings & Grease Guns—Lincoln Engineering Co., 5701 Natural Bridge Ave., St. Louis 20, Mo.
 KLOSD Electric Motors—Sterling Electric Motors, Inc., 5401 Anaheim-Telegraph Rd., Los Angeles 22, Calif.
 Knittel Ring Type Crushers—Stephens-Adamson Manufacturing Co., 7 Ridgeway, Aurora, Ill.
 Knox All Equipment—Knox Manufacturing Co., 811 Cherry St., Philadelphia 7, Penn.
 Koehring Cranes, Draglines, Dumpsters, Mixers, Shovels—Koehring Co., 30th & Concordia Ave., Milwaukee, Wis.
 Kominuter Ball Mills—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.
 Korpak Concrete Block Machines—W. E. Dunn Manufacturing Holland, Mich.
 Kosmic Metal—Magnolia Metal Co., 18 West Jersey St., Elizabeth 4, N. J.
 Kotal Waterproofing, Aggregate—Kotal Co., 52 Vanderbilt Ave., New York 17, N. Y.
 Krane Kar Mobile Swing Boom Crane—Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
 Kromag Chrome-Magnesia Brick—E. J. Lavino & Co., 1528 Walnut St., Philadelphia, Penn.
 Kron Bagging Scales, Batching Scales, Compensation Scales, Hopper Scales, Weigh Ladders—The Kron Co., 1720 Fairfield Ave., Bridgeport 8, Conn.
 Kron Springless Dial Scales—Yale & Towne Mfg. Co., Philadelphia Div., 4530 Tacony St., Philadelphia 24, Penn.
 Krusader Packing—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.
 Kubit Impact Breakers—Iowa Manufacturing Co., 916 - 16th St. N.E., Cedar Rapids, Iowa.

TRADE NAMES

Kue-Ken Balanced Crusher (Jaw Crusher)—Straub Mfg. Inc., 507 Chestnut St., Oakland 7, Calif.
Kue-Ken Gyracone Crusher (Gyratory Reduction Crusher)—Straub Mfg. Co., Inc., 507 Chestnut St., Oakland 7, Calif.
Kue-Ken Jaw Crushers—Straub Manufacturing Co., 507 Chestnut St., Oakland 7, Calif.
Kue-Ken Simplex Crusher (Jaw Crusher)—Straub Mfg. Co., Inc., 507 Chestnut St., Oakland 7, Calif.
Kueneman Gyracone Crushers—Straub Mfg. Co., Inc., 507 Chestnut St., Oakland 7, Calif.
Kuntz Hydrator & Gravity Systems—Lime & Hydrate Plants Co., 232 E. Poplar St., York, Penn.

L

LaCrosse Elevator Belting & Transmission Belting—Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia 4, Penn.
LaFrance Republic Motor Trucks—Sterling Motor Truck Co., Inc., 2021 S. 54th St., Milwaukee, Wis.
Lamcor Belting, Mechanical Rubber Goods—The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.
Lamisilite Absorbent—Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago 3, Ill.
Lapeer Trailers—The Trailer Company of America, 31st & Robertson Ave., Cincinnati, Ohio.
Lapidensin Waterproof Surface Coatings—American Fluoresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.
Lapidolith Concrete Hardener—L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Latite Refractory Cement—The Denver Fire Clay Co., P. O. Box 5510, Denver 17, Colo.
Laughlin Holst Hooks—The Thomas Laughlin Co., 143 Fore St., Portland 6, Me.
Lavino Magnesite Brick—E. J. Lavino & Co., 1528 Walnut St., Philadelphia 2, Penn.
Lawrence Pumps—Lawrence Machine & Pump Corp., 371 Market St., Lawrence, Mass.
Laytek Building Wire—U. S. Rubber Co., 1230 Sixth Ave., New York 20, N. Y.
Lay-Set Wire Rope—Hazard Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn.
L-B. Elevating, Conveying and Power Transmission Machinery—Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Leahy Vibrating Screen—The Deister Concentrator Co., 915 Glasgow Ave., Fort Wayne, Ind.
Le Clair Drag Scrapers—Sauerman Bros., Inc., 522 S. Clinton St., Chicago 7, Ill.
Ledyard Burial Vault Molds and Handling Equipment—The Ashland Vault, Inc., 114 7th St., Ashland, Ohio.
Leemon Vibra Pac Concrete Block Machine—Pentwater Machinery Co., Pentwater, Mich.
Le-Hi Hose Fittings—Hose Accessories Co., Lehigh & 17th St., Philadelphia 32, Penn.
Lenix Short Center Belt Drives—F. L. Smith & Co., 11 West 42nd St., New York 17, N. Y.
Lessmann Loader—Lessmann Mfg. Co., 20th & Easton Blvd., Des Moines 4, Iowa.
Leverlift Hydraulic Hand Lift Truck—Service Caster & Truck Corp., 110 S. Superior St., Albion, Mich.
Leviathan Belting—Main Belting Co., 1241 Carpenter St., Philadelphia 47, Pa.
Ley Bushed Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.
Liberty Dynamite—Equitable Powder Mfg. Co., East Alton, Ill.

Lift Gate Hydraulic Powered Elevating Tail Gate for Motor Truck Bodies—Anthony Co., Inc., Streator, Ill.
Lift-O-Krane Fork Lift Trucks—Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Lightning Sand, Dredge & Centrifugal Pumps—Kansas City Hay Press Co., 801 Woodsworth Road, Kansas City 6, Mo.
Little Titan Platform Scale—C. S. Johnson Co., Champaign, Ill.
Lima Power Shovels, Cranes, Draglines—Lima Locomotive Works, Inc., Shovel & Crane Div., 1108 National Bank Bldg., Lima, Ohio.
Limepulver Pulverizers—The Jeffrey Manufacturing Co., 935-99 N. 4th St., Columbus 16, Ohio.
Line-Arc Magnetic Contactors—The Electric Controller & Manufacturing Co., 2700 E. 79th St., Cleveland 4, Ohio.
Link-Belt Elevating, Conveying, Screening, Drying and Power Transmission Machinery—Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Link-Belt Speeder Cranes, Shovels, Draglines, Link-Belt—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
Lion Conveyor Belts—Link-Belt Co., 220 So. Belmont Ave., Indianapolis 6, Ind.
Liqui-jector Automatic Liquid-Gas Separators—Selas Corp. of America, Erie Ave. & D St., Philadelphia 34, Penn.
Liquid Vibrating Screen—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40
Lith-I-Bar Jolt Machines—W. E. Dunn Manufacturing Co., 23 W. 24th St., Holland, Mich.
Little Dave Brick Machine, Hand Brick Machine—R. S. Reed Corp., E. Hoffman St., Three Rivers, Mich.
Little Giant Portable Elevators, Lime Spreaders—Portable Elevator Mfg. Co., 920 E. Grove St., Bloomington, Ill.
Little Giant Vibrating Concrete Block Machines—J. W. Appley & Son, Inc., 831 9th St., N., St. Petersburg 4, Florida.
Little Titan Scale Wheelbarrow Scale—The C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Live-Roll, Grizzly—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
L & N Electrical Instruments—Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
Lobite Rock Loaders—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.
Lock Joint Concrete Pipe—Lock Joint Pipe Co., 150 Rutledge Ave., East Orange, N. J.
Lockseam Spiralweld All Products—Naylor Pipe Co., 1230 E. 92nd St., Chicago 19, Ill.
Lo-Maintenance Electric Motors & Motor Controls—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.
Long Life Dredging Sleeves—Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia, Pa.
Lorain Moto-Cranes Rubber Tired Cranes—The Thev Shovel Co., 1374 E. 28th St., Lorain, Ohio.
Lorain Power Shovels, Cranes, Clamshells, Draglines—The Thev Shovel Co., 1374 E. 28th St., Lorain, Ohio.
Losant Air Hose, Steam Hose Conveyor & Elevator Belt—Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio.
Lovejoy Flexible Couplings—Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Lo-veyor Vibrating Conveyors—Ajax Flexible Coupling Co., 2 English St., Westfield, N. Y.
Lowden Dryers—Colorado Iron Wks. Co., 1624 17th St., Denver, Colo.
Low-Head Horizontal Vibrating Screens—Allis-Chalmers Manufacturing Co., Milwaukee

L-R Flexible Couplings—Lovejoy Flexible Coupling Co., 5037 W. Lake St., Chicago 44, Ill.
Lube-all Hand Gun (High Pressure Grease)—Balcrank Inc., Cincinnati 9, Ohio.
Lubricating Lubricating Pumps—Lincoln Engineering Co., 5701 Natural Bridge Ave., St. Louis, 20, Mo.
Lubriplate Lubricants—Fiske Brothers Refining Co., Lubriplate Div., 129 Lockwood St., Newark 5, N. J.
Lufkin Machinists Tools—The Lufkin Rule Co., Saginaw, Mich.

M

Mack Motor Trucks, Tractors—Mack - International Motor Truck Corp., Empire State Bldg., New York 1, N. Y.
Mack-Lanova Diesels—Mack-International Motor Truck Corp., Empire State Bldg., New York 1, N. Y.
Mack Mariner Marine Diesels—Mack - International Motor Truck Corp., Empire State Bldg., New York 1, N. Y.
Macloed Dust Collectors, Heaters, Oil Burners—The Macloed Co., 2032-40 Bogen St., Cincinnati 22, Ohio.
Macwhyte Wire Rope—Macwhyte Co., 2949 14th Ave., Kenosha, Wis.
Majic-Grip V-Belt Sheaves—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Magnaflo Electric Vibrating Screens & Feeders—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Magnex Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.
Magnisat Free-Vane Air-Operated Controller—The Bristol Company, Waterbury 91, Conn.
Magnolia Anti-Friction Babbitt Metal—Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.
Magnolia Bearing Bronze—Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.
Mahr Furnaces and Heat Equipment—Diamond Iron Works, Inc. & The Mahr Mfg. Co. Div., 1800 N. 2nd St., Minneapolis 11, Minn.
MAK Shaking Screens—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Malacca Plastic Rubber—Glover Coating Co., 376 Washington St., Malden, Mass.
Maltese Cross Elevator & Conveyor Belts, Hose (Air Drill, Suction, Water, Steam, Concrete Placing), and Dredging Sleeves—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo 5, N. Y.
Mammoth Hammer Crushers—Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.
Manasite Detonators—Atlas Powder Co., Wilmington 99, Del.
Manganal Welding Products—Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.
Manganal Welding Rods—Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Manganweld Arc Welding Electrode—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.
Mangotone N.M. Welding Rod—Resisto-Loy Co., 127 Baylis St., S.W., Grand Rapids, Mich.
Mango Shovel Parts—Allied Steel Products Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio.
Manhattan Hose, Mechanical Rubber Products & Belting—Raybestos - Manhattan, Inc., 61 Willett St., Passaic, N. J.
Manson Friction Tape—The Okonite Co., Passaic, N. J.
Man-ten Chute Linings—Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 19, Penn.

Marco Conveyors, Feeders, Bucket Elevators, Belt-Feeders, Troughing Rollers—E. F. Marsh Eng. Co., 4030 Chouteau Ave., St. Louis 10, Mo.
Marcy Ball & Rod Mills—The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver, Colo.
Marfak Lubricants—The Texas Co., 135 E. 42nd St., New York 17, N. Y.
Marion Dump and Truck Bodies, Spreaders, and Hoists—The Marion Metal Products Co., Cheney Ave., Marion, Ohio.
Marion Shovels, Cranes, Draglines—Marion Steam Shovel Co., W. Center St., Marion, Ohio.
Markal Marking Sticks—Markal Co., 6 E. Lake St., Chicago 1, Ill.
Markley-Carter Dust Collectors—Ralph B. Carter Co., Markley-Carter Dust Collector Div., 192 Atlantic St., Hackensack, N. J.
Marmon - Herrington All-Wheel Drive Trucks, Tractors—Marmon-Herrington Co., 1511 W. Washington St., Indianapolis 8, Ind.
Massco Automatic Feed Controllers for Grinding Mills, Rock Bit Grinders—The Mine & Smelter Supply Co., P. O. Box 5270 Terminal Station, Denver, Colo.
Massco-Adams Density Controllers—The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver, Colo.
Massco-Fahrendwald Flotation Machines—The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver, Colo.
Massco-Grigsby Pinch Valves—The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver, Colo.
Massco-Hi-Capacity Laboratory Crushers—The Mine & Smelter Supply Co., P. O. Box 5270 Terminal Annex, Denver, Colo.
Massco-McCarthy Hot Miller—The Mine & Smelter Supply Co., P. O. Box 5270 Terminal Annex, Denver, Colo.
Massco-McCool Laboratory Pulverizer—The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Annex, Denver, Colo.
Mass-Flo Elevator-Conveyor—The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio.
Master Conveyor Belting—The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan Inc., 61 Willett St., Passaic, N. J.
Master Pulverizers—Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.
Master Tandem Portable Crushing Plants—Iowa Manufacturing Co., 916-16th St., N.E., Cedar Rapids, Iowa.
Matchless Mechanical Rubber Goods—U. S. Rubber Co., 1230 Sixth Ave., New York 20, N. Y.
Maxecon Mill Pulverizer—Kent Mill Co., 10 Rapelye St., Brooklyn 31, N. Y.
Maxi Engineered Capstans, Crane Undercarriages, Four Wheel Drives, Hoists, Six Wheel Units, Utility Derrick, Truck Units—Six Wheels Inc., 1550 E. 20th St., Los Angeles 11, Calif.
Maximix Rubber Wear Resistant Parts for Hydroseal Pumps—The Allen-Sherman-Hoff Co., 1435 Locust St., Philadelphia 2, Penn.
Maxiflo Conveyor Belting—The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio.
McCracken Concrete Pipe Machinery—Concrete Pipe Machinery Co., 9th & Division Sts., Sioux City 19, Iowa.
McCaffrey Tractor Shovels, Clamshell and Dragline Buckets—M. P. McCaffrey Inc., 2121 East 25th St., Los Angeles 11, Calif.
McCuilly Gyratory Crushers, Elevators & Revolving Screens—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.
McGann-Kuntz Lime Kilns—McGann Manufacturing Co., P. O. Box 1187, York, Penn.

TRADE NAMES

McLanahan washers, crushers, etc., — McLanahan & Stone Corp., Hollidaysburg, Penn.
Meckum Dredge Pumps & Dredge Hauls — Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Merco Valves — Merco Nordstrom Valve Co., 400 N. Lexington Ave., Pittsburgh, Penn.
Mesabi Conveyors — Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Mesabi Crushing Rolls — Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.
Meteor Electric Hoists — Chisholm-Moore Hoist Corp., Tonawanda, N. Y.
Metropolitan Hose, Air Drill—Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.
Mex-R-Co. Heat Set, Heat Setting Bonding Mortar — Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
Microact Potentiometer Pyrometer Controller — The Bristol Company, Waterbury 91, Conn.
Micromax Pyrometers & Records — Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.
Micronizer Pulverizers — International Pulverizing Equipment, New Albany Rd., Moorestown, N. J.
Miles Concrete Products Equipment — The Miles Manufacturing Co., 545-7 Hupp Ave., Jackson, Mich.
Mine Air Mine Car Compressors — Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.
Mine King Air Hose — Goodall Rubber Co., 5 So. 36th St., Philadelphia 4, Penn.
Minit Lubricator High Pressure Grease Pump — Balcrank Inc., Disney St., Cincinnati 9, Ohio.
Minneapolis-Moline Engines, Power Units, Industrial Tractors — Minneapolis-Moline Power Implement Co., Box 1015, Minneapolis 1, Minn.
Minneapolis V Elevator Buckets — Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.
Mir-O-Col Hard Facing Rods & Alloys — Mir-O-Col Alloy Co., 2416-30 East 53rd St., Los Angeles 11, Calif.
Misabe Power Shovel Dippers — American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
Missing Link Chain Repair Links — The Thomas Laughlin Co., 143 Fore St., Portland 6, Me.
Mississippi Wagon Bottom-Dump Hauling Unit — M-R-S Mfg. Co., P. O. Box 1206, 1940 N. Mill Road, Jackson 110, Miss.
Mitco Stair Treads & Steps — Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Penn.
Mixermobile Mobile Concrete Plant with Elevating Tower — Mixermobile Manufacturers, 6855 N.E. Halsey, Portland 16, Oregon.
Mobil-Air Portable Compressors — Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Mobiloader Tractor Shovel — Athey Truss Wheel Co., 5631 W. 65th St., Chicago 38, Ill.
Mogul Core Breakers — Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland 5, Ohio.
Mogul Hammermills — Dixie Machinery Manufacturing Co., 4200 Goodfellow, St. Louis, Mo.
Mogul Junior Hammermills — Dixie Machinery Manufacturing Co., 4200 Goodfellow, St. Louis, Mo.
Mohawk Belt (Elevator, Conveyor, Grader) — Hewitt Rubber Corp., 240 Kensington Ave., Buffalo 5, N. Y.
Moler Insulating Brick — F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y.
Moly Shovels, Spades, Scoops — Wood Shovel & Tool Co., Roosevelt & Clark Sts., Piqua, Ohio.

Momang Welding Rod — American Manganese Steel Div. of American Brake Shoe Co., 377 E. 14th St., Chicago Heights, Ill.
Monarch Burial Vault Forms — Wilbert W. Haase Co., 1005 Troost Ave., Forest Park, Ill.
Monarch Idlers & Transmission Equipment — Sprout, Waldron & Co., Muncy, Penn.
Monarch Hose (Air Drill, Steam, Jetting, Hydraulic, Grout, Cement Gun and Dry Material) — Hewitt Rubber of Buffalo, (Div. of Hewitt-Robins, Inc.), 240 Kensington Ave., Buffalo 5, N. Y.
Monarch Slings — Macwhyte Co., 2949 14th Ave., Kenosha, Wis.
Monarch Whyte Strand Wire Rope — Macwhyte Co., 2949 14th Ave., Kenosha, Wis.
Monasite Detonators — Atlas Powder Co., Delaware Trust Bldg., Wilmington 99, Del.
Mono-Fibrik Plastic Fire Brick — Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
Mono Goggle Plastic Goggles — Wilson Products, Inc., 2nd & Washington Sts., Reading, Penn.
Mono-Line Plastic Fire Brick — Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.
Monoset Free-Vane Air-Operated Controller — The Bristol Company, Waterbury 91, Conn.
Moore Bin Gates — Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Morag Crushing Plant — Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa.
Mo-Rex High Heat Fire Brick — Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
Norma-Hoffmann Ball, Roller and Thrust Bearings — Normal Hoffmann Bearings Corp., Hamilton Ave., Stamford, Conn.
Morok Portable Rock Plants — Iowa Manufacturing Co., 916 16th St. N. E., Cedar Rapids, Iowa.
Morris Portable Combination Brick Casting Machine, Mixer — Morris Mfg. Co., 900 Brundage, Bakersfield, Calif.
Morris Portable Concrete Block Machine — Leader Welding & Mfg. Co., 2418 6th St., Berkeley 2, Calif.
Mortarset Refractory Cement — Walsh Refractories Corp., 4070 North First St., St. Louis 7, Mo.
Mosher Electronic Feed Controls — Mosher Electronic Controls, 130 W. 42nd St., New York 18, N. Y.
Motoblower Blowers — Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Moto-Crane Mobile Rubber-Tired Cranes and Shovels — The Thew Shovel Co., E. 28th St., Lorain, Ohio.
Motowlift Fork Lift Truck — Service Caster & Truck Corp., 110 S. Superior St., Albion, Mich.
Motorecompressor Stationary Compressors — Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Motor Driven Alternating Valves, Rotary Valves — Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
Motoreducer Gear Motor — The Falk Corp., 3001 W. Canal, Milwaukee 8, Wis.
Moto Reducer Motorized Speed Reducers — Philadelphia Gear Works, Erie Ave. & G St., Philadelphia 34, Penn.
Motorpump General Service Pump — Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Moto-Vibro Vibrating Screens — Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass.
MR Roller Chains — Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.
MS Malleable Iron Buckets — Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

M.S.A. First Aid Cabinets, Goggles, Kits & Supplies, Ventilating Equipment, Welders Protective Equipment — Mine Safety Appliances Co., Brad-dock, Thomas & Meade Sts., Pittsburgh 8, Penn.
M-22 and M-26 Insulating Fire Brick — Mexico Refractories Co., Love & Cole Sts., Mexico, Mo.
Mud Jack Level Raising Equipment — Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Multitex Fire Brick, Kiln Liners, Refractory Cement — Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.
Multicore Dust Collectors — Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.
Multiduty Multiple Groove V-Belt Sheaves — The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.
Multi-Louvre Dryers & Coolers — Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
Multimite Enclosed Electric Switch Gear — I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Philadelphia 30, Penn.
Multi-Mold Tamping Concrete Block Machines — Besser Mfg. Co., Alpena, Mich.
Multiplex Concrete Products Machinery — Multiplex Concrete Machinery Co., Elmore, Ohio.
Multi-Roll Sizer Grizzlies — Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Multi-Stage Reduction Crushers — Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.
Multi-Tier Dryers & Coolers — Link-Belt Co., 330 Pershing Rd., Chicago 9, Ill.
Multitherm Air Conditioning Unit — Clargene Fan Co., North & Porter Sts., Kalamazoo 16, Mich.
Murco Heaters — D. J. Murray Manufacturing Co., Wausau, Wis.
Murex Welding Electrodes — Metal & Thermit Corp., 120 Broadway, New York 5, N. Y.
Murray Braided Wire Rope Slings — Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.
Mystic Babbitt Metal — Magnolia Metal Co., 18 West Jersey St., Elizabeth 4, N. J.

N

Naco Chain — National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio.
National Calcium Carbide — Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.
National Conveyor Belts — Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Naylor Lockseam Spiralweld Pipe — Naylor Pipe Co., 1237 E. 92nd St., Chicago 19, Ill.
Neff & Fry Silos, Bins, Batching Plants & Tanks — The Neff & Fry Co., 150 S. Main St., Camden, Ohio.
Nelson Bucket Loaders — N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J.
Nelson Inclined Kilns — Victor J. Nelson Eng. & Constr. Co., 1321 Riverside Dr., Burbank, Calif.
Neo-Fats, Fractionally Distilled Fatty Acids — Flotation Reagents-Armour Chemical Div., Armour & Co., 1355 W. 31st St., Chicago 9, Ill.
Neverleak Couplings (Hose, Pneumatic) — The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland, Ohio.
Neverseal Hose Clamps — The Cleveland Rock Drill Co., 3781 E. 77th St., Cleveland, Ohio.
Newark Wire Cloth Products — Newark Wire Cloth Co., 351 Vernon Ave., Newark 4, N. J.
New Departure Ball Bearings — New Departure Div. General Motors Corp., Bristol, Conn.
Newhouse Gyrotory Crushers — Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

New Leader Limestone & Mari Spreaders — Highway Equipment Co., 616 D Ave. N. W., Cedar Rapids, Iowa.
Newtype Cord Suction Hose — Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia 4, Penn.
NF & GA Hammer Crushers — Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.
Ni-Hard Castings — Robins Conveyors, Inc., 270 Passaic Ave., Passaic, N. J.
900 Chains — Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.
997 Low Fumins Welding Rod — The American Brass Co., 2114 Meadow, Waterbury 88, Conn.
Nitrailloy Nitride Steel — Joseph T. Ryerson & Son, Inc., 2538 W. 16th St., Box 8000-A, Chicago 80, Ill.
Nitramon Blasting Agents — E. I. du Pont de Nemours & Co., Inc., Explosives Dept., N. W. Corner 10th & Market Sts., Wilmington 98, Del.
Noble Batching Batching Plants — Noble Co., 1860 7th St., Oakland 7, Calif.
No Gali Compound — Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.
No-Graf Lubricating Grease — Gredag, Inc., P. O. Box 838, Niagara Falls, N. Y.
No-Leak Apron Conveyors — Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
Non-Clog Hammermills — Dixie Machinery Manufacturing Co., 4200 Goodfellow, St. Louis, Mo.
Non-Clogging Spray Nozzles — Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Non-Fluid Oil Lubricants (Ball and Roller Bearing, Pressure, Gear, Motor, Wire Rope) — New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, N. Y.
Nonparell Wire Rope — Hazard Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Penn.
Nordco Valve Lubricants — Merco Nordstrom Valve Co., 400 N. Lexington Ave., Pittsburgh, Penn.
Norma-Hoffmann Precision Ball, Roller & Thrust Bearings — Norma-Hoffmann Bearings Corp., Hamilton Ave., Stamford, Conn.
Northwest Cranes, Draglines, Wagon Cranes, Excavators, Shovels, Truck Cranes, Truck Shovels — North-West Engineering Co., 28 E. Jackson Blvd., Chicago 4, Ill.
No-Thread Fittings & Couplings — Dresser Mfg. Div., Dresser Industries, Inc., Bradford, Penn.
No-Vent Electric Blasting Caps — Hercules Powder Co., 948 King St., Wilmington 99, Del.
Nurex Grinding Balls — National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, Ohio.

O

"O" Class Combination Chain — Link-Belt Co., 220 South Belmont Ave., Indianapolis 6, Ind.
O-D-S Slurry Pumps — Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.
Oilite Machine Parts & Filters — Chrysler Corp., Amplex Div., 6501 Harper Ave., Detroit 11, Mich.
Oilite Bronze Bearings & Cored Bar and Plate Stock — Chrysler Corp., Amplex Div., 6501 Harper Ave., Detroit 11, Mich.
Oil King Air Hose — Goodall Rubber Co., 5 So. 36th St., Philadelphia 4, Penn.
Oil-Rite Air Line Lubricators — Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Oil-Rite Constant Level Lubricators, Drip Oilers, Loose Pulley Lubricators, Spindle Lubricators — Oil-Rite Corp., 3420 S. 13th St., Milwaukee 7, Wis.

TRADE NAMES

O.K. Hoisting Machinery, Portable Material Hoisting Towers, Portable Air Compressors; Gasoline, Diesel Engines and Electric Motor-Powered—O.K. Clutch & Machinery Co., 619 Florence St., Columbia, Penn.

Okocord Portable Cables—The Okonite Co., Passaic, N. J.

Okolite Insulated Wire—The Okonite Co., Passaic, N. J.

Okonite Rubber Splicing Tapes—Okonite Co., Passaic, N. J.

Oliver Wheel Tractors—The Oliver Corp., Industrial Div., 19300 Euclid Ave., Cleveland 17, Ohio.

Oliver Continuous Vacuum Filters, Hopper Dewaterers—Oliver United Filters, Inc., 33 W. 42nd St., New York 18, N. Y.

Olson Self-Dumping Mine Cages—Eagle Iron Works, 129 Holcomb Ave., Des Moines 4, Iowa.

Omicron Mortarproofing for Masonry Mortars—The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio.

100 Belt Conveyor Idler—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

1100 Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Opaline Motor Oil—Sinclair Refining Co., 630 5th Ave., New York, N. Y.

Oriole Hose and Belting—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo, N. Y.

Ortho-O-Meters—Meters—Automatic Liquid Meter Co., 1372 E. 15th St., Los Angeles 21, Calif.

Orvis Fire Clay Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Osage Transmission Belting—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

Oscillating-Trough Conveyors—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Osgood Power Shovels, etc.—The Osgood Co., Marion, Ohio.

Ottawa Hydraulic Tractor Shovels—Ottawa Steel Products, Inc., Ottawa, Kan.

Ottawa Industrial-Heavy Duty Hydraulic Front End Loader for Heavy Duty Industrial Tractors—Ottawa Steel Products, Inc., 1st & Walnut, Ottawa, Kan.

Oval Bag Dust Arrestor—Parsons Engr. Corp., 2546 E. 76th St., Cleveland 4, Ohio.

Overstrom Universal Concentrating Tables—Straub Manufacturing Co., 507 Chestnut, Oakland, Calif.

P

Pacemaker Conveyor & Elevator Belt, Transmission Belt—Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio.

Pacemaker Stone Plants—Universal Engineering Corp., 625 C Ave. N.W., Cedar Rapids, Iowa.

Pacific Belt Conveyor Carriers—Stephens-Adamson Manufacturing Co., 7 Ridgeway Ave., Aurora, Ill.

Pacific Coast Carriers—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Pacific Rock Bitgrinders—Alloys Steel & Metals Co., 1862 E. 55th St., Los Angeles 11, Calif.

Pacific-Western Hoists, Drives, Car Movers, Gears, Hammer Head & Ship Cranes—Western Gear Works, 417 Ninth South, Seattle 4, Wash.

Page Draglines, Buckets—Page Eng. Co., Clearing P. O., Chicago 38, Ill.

Palmetto Mechanical Rubber Goods Packings—Greene, Tweed & Co., 4377 Bronx Blvd., New York 66, N. Y.

Palmetto Solid Woven Cotton Belting—Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y.

P & H Arc Welding Apparatus, Backfillers, Buckets, Cranes, Ditchers, Draglines, Hard Surfacing Metals, Hoists, Shovels, Trenching Machines, Welding Machines and Supplies—Harnischfeger Corp., 4400 W. National Ave., Milwaukee 14, Wis.

Pangborn Dust Control Systems—Pangborn Corp., Hagers-town, Md.

Paranite Hose—The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.

Patchmaster Asphalt Plant—Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa.

Path Digging Bucket Loaders—George Haiss Co., Park Ave. & 143rd St., New York 51

Payloader Tractor-Loader—The Frank G. Hough Co., E. Sunnyside Ave., Libertyville, Ill.

P. D. Vibrating Screens—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.

Peck Overlapping Pivoted Bucket Carriers—Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.

Peerless Mechanical Rubber Goods—U. S. Rubber Co., 1230 Sixth Ave., New York 20, N. Y.

Peerless OK Weatherproof Line Wire—General Cable Corp., 420 Lexington Ave., New York 17, N. Y.

Peerless Steel Bushed Chain—The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio.

Peico Coolers—Portable Elevator Mfg. Co., 920 E. Grove St., Bloomington, Ill.

Pennsylvania Air Compressors & Centrifugal Pumps—Pennsylvania Pump & Compressor Co., Easton, Penn.

Pennsylvania Slow Speed Granulators—Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Pa.

Pennsylvania Steelbuilt Hammermills, Impactors—Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn.

Pennsylvania Steelbuilt Reversible Hammermills, Impactors—Pennsylvania Crusher Co., Liberty Trust Bldg., Philadelphia 7, Penn.

Pennetex Interwoven Cotton Transmission Belting—Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y.

Perdure Chains & Buckets—Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio.

Perfect Wire Cloths & Woven Wire Screens—Newstead Ave. & Wabash R. R., St. Louis 10, Mo.

Perfection Separator Vibrating Screens—Kent Mill Co., 10 Rapelye St., Brooklyn 31, New York.

Permanente Refractories—Permanente Cement Co., Kaiser Bldg., Oakland, Calif.

Permaset Preformed Wire Rope—Jones & Laughlin Steel Corp., 3rd & Ross Sts., Pittsburgh 30, Penn.

Permite Aluminum Alloy, Castings, Aluminum Paint, Industrial Finishes, Magnesium Alloy Castings—Aluminum Industries, Inc., 2438 Beckman, Cincinnati, Ohio.

Per-O-Flow Classifiers—Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.

Petrol Gasoline (Gas) Engines—Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y.

Phoenix Cars, Trailers and Truck Bodies—Easton Car & Construction Co., Box 270, Easton, Penn.

Pilotrol Air-Operated Controller—Bailey Meter Co., 1050 Ivanhoe Road, Cleveland 10, Ohio.

Pioneer Crushers, Screens & Plants—Pioneer Engr. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.

Pioneer-Oro Feeders—Pioneer Eng. Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.

Pipe Layers Tractor—Mounted Cranes—Trackson Co., 3333 S. Chase Ave., Milwaukee 1, Wis.

Piqua Shovels, Spades, Scoops—Wood Shovel & Tool Co., Piqua, Ohio.

Pirumite Chute Lining—Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Pistonair Air Motors—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.

Pitmaster Crushing Plant—Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa.

Pittsburgh Steel Wire Products—Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Penn.

Pittsburgh Transformers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

P. I. V. Gear Positive Infinitely Variable Speed Transmissions—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia

Piamondon Clutches—Foot Bros. Gear & Machine Corp., 5225 S. Western Blvd., Chicago 9, Ill.

Plastic Furnace Lining Refractory Plastic—Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

Plastiment, Concrete Densifier Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.

Plato Concentrating Tables, Vibrating Screens—Deister Machine Co., 1933 E. Wayne St., Fort Wayne 4, Ind.

Plastocrete Pasticizing & Water Reducing Agent for Concrete—Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.

Pioweld Pipe and Tank Lining—The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio.

Plus Type Steel Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

PMCO Welded Dippers—Pettibone Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.

Poidometer Weighing Conveyors—Schaffer Poidometer Co., 2828 Smallman St., Pittsburgh 22, Penn.

Porter Agitators, Ball Mills, Locomotives, Mixers, Wood Tanks—H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Portereducer Agitator H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Porto-Batcher Portable Transit Mix Plant—The C. S. Johnson Co., P.O. Box 71, Champaign, Ill.

Positive Drive Vibrating Screens—Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis, Mo.

Potentiometer Potentiometer Controller—Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

Powerflex Wire Braid Hose—Thermold Co., Whitehead Rd., Trenton 6, N. J.

Power-Flex Underfeed Stokers—Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.

Power Hoe Drag Scrapers—Link-Belt Co., 310 W. Pershing Rd., Chicago 9, Ill.

Power King Transmission Belting—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

Power Nickel Genuine Babbitt—Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.

Powersteel Wire Rope—Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.

Pozzolith Cement Dispersing Agent—The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio.

P. P. P. Packing—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

Pratt Box Car Loaders—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.

Valves and Valve Fittings—Reading-Pratt & Cady Div., American Chain & Cable Co., Inc., Reading, Penn.

Premier Hammermills—Dixie Machinery Manufacturing Co., 4200 Goodfellow, St. Louis, Mo.

Premier Junior Hammermills—Dixie Machinery Manufacturing Co., 4200 Goodfellow, St. Louis, Mo.

Preset Air-Operated Controller—The Bristol Co., Waterbury 31, Conn.

Presto-Lock Flexible Pipe Couplings—Drinkwater, Inc., 2323 S. Michigan Ave., Chicago 16, Ill.

Primacord Detonating Fuse—The Ensign-Bickford Co., Simsbury, Conn.

Primate Special Packing of Hercules—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Projection Unit Heater—The Trane Co., 2nd & Cameron Ave., La Crosse, Wis.

Promal Cast Chains, Buckets, Castings—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Propello Propeller Type Meters—Builders-Providence, Inc., 9 Coddling St., Providence 1, R. I.

Protectoglo Combustion Safeguard—The Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia 44, Penn.

Protectomotor Air and Liquid Filters Including Filters for Engine and Compressor Intake—Dollinger Corp. (Formerly Staynew Filter Corp.), 11 Centre Park, Rochester 4, N. Y.

Prufcoat Protective Coating—Prufcoat Laboratories, Inc., 63 Main St., Cambridge 42, Mass.

Pruffite Water Proofing, (Transparent)—Prufcoat Laboratories, Inc., 63 Main St., Cambridge 42, Mass.

Pulvazon Coating & Filler—Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago 3, Ill.

Pulverator Multi-Impact Crushers—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

PX-33 Plastic Fire Brick—The Denver Fire Clay Co., P.O. Box 5510, Denver 17, Colo.

Pyramid Babbitt Metal—Magnolia Metal Co., 18 W. Jersey St., Elizabeth 4, N. J.

Pyranol Transformers—General Electric Co., 1 River Rd., Schenectady 5, N. Y.

Pyrasteel Heat Resisting Castings—Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill.

Pyrrator Drying and Grinding Mills—F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y.

Pyrometer Round-Chart Potentiometer Recorder & Controller—Furnished as a Pyrometer, Resistance Thermometer, Tachometer & Shunt Ammeter—The Bristol Company, Waterbury 31, Conn.

Pyrotron Potentiometer Pyrometers and Resistance Thermometers—Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio.

Q

Q-Chromastic Plastic Super-Refractory Cement, Surfacing Mortar—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.

Q-Seal Plastic, Expansive, Joint-Sealing Compound—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.

Quad Atmospheric Cooling & Condensing Units—Young Radiator Co., 709 S. Marquette St., Racine, Wis.

Quaker Belting, Hose, Packing, Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia

Quickest Sealant—American Fluorist Co., Inc., 635 Rockdale Ave., Cincinnati 29, Ohio.

Quigley Gun Shoots Refractory & Concrete Mixtures—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.

Quigley Retort Cement for Hot Patching Coal Gas Retorts—Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.

TRADE NAMES

Quik-Lift Electric Hoists—Coffing Holst Co., 800 Walter St., Danville, Ill.

Quimby Pumps—Quimby Pump Co., Division of H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.

Quimpack Centrifugal Pumps—H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Quincy Air Compressors & Vacuum Pumps—Quincy Compressor Co., 217 Maine St., Quincy, Ill.

Quinn Concrete Pipe Machinery, Concrete Tile Machines, Molds and Carts—Quinn Wire & Iron Works, Boone, Iowa.

R

R & I Moldite A Castable Refractory—Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.

R & I #3000 High Temperature Bonding Mortar—Refractory & Insulation Corp., 120 Wall St., New York 5, N. Y.

Radiomatic Pyrometer—The Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia 44, Penn.

Railroad Mud Jack Level Raising Equipment—Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.

Ranger Fire Clay Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Rapidmix Portable Asphalt Plants—Iowa Manufacturing Co., 916 16th St., N.E., Cedar Rapids, Iowa.

Raybestos Fan Belts, Brake Linings, Clutch Facings, Hose—Raybestos - Manhattan, Inc., 61 Willett St., Passaic, N. J.

Raymond Automatic Pulverizers, Disintegrators—Raymond Pulverizer Div., Combustion Eng. Co., Inc., 1315 North Branch St., Chicago 22, Ill.

Raymond Bowl Mills, Coal Pulverizers—Raymond Pulverizer Div., Combustion Eng. Co., Inc., 1315 North Branch St., Chicago 22, Ill.

Raymond Imp Mills, Grinding Mills—Raymond Pulverizer Div., Combustion Eng. Co., Inc., 1315 North Branch St., Chicago 22, Ill.

Raymond Mechanical Air Separators, Air Separators—Raymond Pulverizer Div., Combustion Eng. Co., Inc., 1315 North Branch St., Chicago 22, Ill.

Raymond Roller Mills, Grinding Mills—Raymond Pulverizer Div., Combustion Eng. Co., Inc., 1315 North Branch St., Chicago 22, Ill.

Ray Oil Burner—Ray Oil Burner Co., 401-499 Bernal Ave., San Francisco 12, Calif.

Rayotube Temperature Detecting Element—Leeds & Stenton Co., 4970 Stenton Ave., Phila. 44, Penn.

Razorback Hand Shovels—The Union Fork & Hoe Co., 9 Battles Ave., Columbus 8, Ohio.

RC and RCS Unloader Pilot Valves—R. Conrad Co., 1209 French St., Erie 2, Penn.

RC Flexible Shaft Couplings and Roller Chains—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

RDA For Raw Grinding & Oil Well Cement—Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass.

Reading Pipe Steel Fittings—Reading-Pratt & Cady Div., American Chain & Cable Co., Inc., Reading, Penn.

Red Arrow Lift Trucks—Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, Ohio.

Record Maker Conveyor Belts—Republic Rubber Division, Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio.

Red Arch Dragline Buckets & Chain—Bucyrus-Erie Co., South Milwaukee, Wis.

Red Cross Extra Dynamite—E. I. duPont de Nemours & Co., Inc., N.W. corner 10th & Market Sts., Wilmington 98, Del.

Redi-Slit Cartridges—Atlas Powder Co., Wilmington 99, Del.

Red Seal Engines—Continental Motors Corp., Muskegon, Mich.

Redler Conveyor-Elevators—Stephens-Adamson Manufacturing Co., 7 Ridgeway, Aurora, Ill.

Redwing Air Hose—The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio.

Reeves Variable Speed Motor-Drives, Motor Pulleys and Transmissions—Reeves Pulley Co., Columbus Ind.

Reguflux Amplifying Generator or Exciter Electrical Control—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Rek-Tang Long-Slot Woven Wire Screens—Ludlow-Saylor Wire Co., Newstead Ave. & Wabash R.R., St. Louis 10, Mo.

Reliance Belt Idlers, Chain—The Jeffrey Manufacturing Co., 935-99 N. 4th St., Columbus 16, Ohio.

Reliance Conveyor & Elevator Belting, Hose (Water, Steam, Suction & Discharge)—Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Reliance Electric Motors & Motor-Generator Sets—Reliance Electric & Engr. Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio.

Reliance Engines—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Reliance Crushing, Screening and Handling Equipment—Universal Road Machinery Co., 27 Emerick St., Kingston, N. Y.

Reliance Leather Belting—Chicago Belting Co., 113 N. Green St., Chicago 7, Ill.

Remington Industrial Gun and Ammunition—Remington Arms Co., Inc., 939 Barnum Ave., Bridgeport 2, Conn.

Rimmel Concrete Mixers—Rimmel Mfg. Co., Kewaskum, Wis.

Repeat-O-Matic Meters—Automatic Liquid Meter Co., 1372 E. 15th St., Los Angeles 21, Calif.

Republic Chute Lining Hose—Republic Rubber Div., Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio.

Republic Steels—Republic Steel Corp., Republic Bldg., Cleveland 10, Ohio.

Resisto-Loy Non-Ferrous Hardfacing Welding Rod—The Resisto-Loy Co., 127 Bayliss St., S.W., Grand Rapids 7, Mich.

Resoweld Pipe and Tank Lining—The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio.

Revolver Whirley—American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.

Rex Flexible Metal Hose—Chicago Metal Hose Corp., Maywood, Ill.

Rex Chain and Belt Elevators and Conveying Machinery, Chain Drives, Construction Machinery, Flat Spray Nozzles, Power Transmission Machinery, Mixers (Concrete Mixers), Motor-Mixers (Truck Mixers), Pomerete (Concrete Pump), (Centrifugal Water Pumps), Sprockets—Chain Belt Co., 1649 W. Bruce St., Milwaukee 4, Wis.

Rex-Metal Castings—Chain Belt Co., 1600 W. Bruce St., Milwaukee, Wis.

Rialto Elevator Buckets—Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.

Rib-Cone Ball-Mills Screening and/or Screenless Types—Straub Manufacturing Co., 507 Chestnut St., Oakland 7, Calif.

Richards-Janney Classifiers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Richlube Motor Oil—Richfield Oil Corp. of N. Y., 19 W. 50th St., New York 20, N. Y.

Ring-Roll Mill—Grinding Mill—Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass.

Rip Cord Closure (for Cement Bags)—Bernis Bros. Bag Co., 410 Poplar St., St. Louis 2, Mo.

Rip-Flo Vibrating Screens—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Ritex-A & C Magnesite Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Rivetless Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

R-M Asbestos Products, Friction Materials, Packings, Rubber Products—Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.

Roadbuilders Water Hose—Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia, Penn.

Robins Conveying Machinery—Robins Conveyors Inc. (Div. of Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J.

Robins-Mead Morrison Bridges, Towers—Robins Conveyors Inc., 2700 Passaic Ave., Passaic, N. J.

Robins-Messier Ore Bedding System—Robins Conveyors Inc., 2700 Passaic Ave., Passaic, N. J.

Robins-Oro Feeders—Robins Conveyors Inc., 2700 Passaic Ave., Passaic, N. J.

Robinson Air Activated Conveyor Systems—Robinson Air Activated Conveyor Systems, Div. of Morse Boulder Destructor Co., 205 E. 42nd St., New York 17, N. Y.

Rockart Rock Cart—Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa.

Rock Emery Grinding Mills—Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass.

Rockcrete Vibrating Block Machine—Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga.

Rocker Shovel Loaders & Unloaders—The Elmco Corp., P. O. Box 300, Salt Lake City 8, Utah.

Rocking Contact Generator Voltage Regulators—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Rockmaster Detonating Device—Atlas Powder Co., Wilmington 99, Del.

Rockwood All Equipment—Rockwood Mfg. Co., 1801 English Ave., Indianapolis, Ind.

Rocobeco Elevator Belts—Robins Conveyors Inc., 2700 Passaic Ave., Passaic, N. J.

Ro-Flo Rotary Air Compressors, Vacuum Pumps—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Roll-a-plane Roller—Austin-Western Co., Aurora, Ill.

Rolling Ring Crushers & Pulverizers—American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo.

Roll-Pak Detonator Package—Atlas Powder Co., Delaware Trust Bldg., Wilmington 99, Del.

Rollway Bearings—Rollway Bearing Co., 541 Seymour St., Syracuse 4, N. Y.

Ro-Man Manganese Steel Products—Manganese Steel Forge Co., Richmond St. & Castor Ave., Philadelphia, Penn.

Rooter Heavy Duty Ripper—R. G. LeTourneau, Inc., 2301 N. Adams, Peoria 3, Ill.

Ropeveyor Portable Electric Conveyors—Clark Tractor Co., 114 Springfield Pl., Battle Creek, Mich.

Ro-Tap Testing Sleeve Shaker—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Rotary Crushers—Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass.

Rotex Screening Machines—The Orville Simpson Co., 1230 Knowlton St., Cincinnati 13, O.

Rotex Rotary Pump—H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Roto-Clone Dust Collector—American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Kentucky.

Roto-Louvre Dryers, Coolers—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Rotoscoop Sand Dewaterers—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Ro-Twin Rotary Air Compressors, Vacuum Pumps—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Roustabout Crane Tractor Model Crane, Combination High-Lift, Bulldozer and Shovel—The Hughes-Keenan Co., P. O. Box 398, Mansfield, Ohio.

Royall All Rubber Goods—U. S. Rubber Co., 1230 Sixth Ave., New York 20, N. Y.

R P M Automotive Greases & Motor Oils—Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif.

R P M Delo Lubricating Oils—Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif.

Rubberdisc Conveyor Idlers—Robins Conveyors Inc., 270 Passaic Ave., Passaic, N. J.

Rubilene Oils—Sinclair Refining Co., 630 5th Ave., New York, N. Y.

Rucker-Vaughn Valves—Rucker-Vaughn Co., 4228 Hollis St., Oakland 8, Calif.

Rud-O-Matic Taglines—McCaffrey-Ruddock Tagline Corp., 2121 E. 25th St., Los Angeles 11, Calif.

Ruggles-Coles Coolers, Dryers, Kilns—Ruggles-Coles Engineering Co., 122 E. 42nd St., New York, N. Y.

Ruptair Magnetic Air Circuit Breaker—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Rust Avert Protective Coating for Metal Parts, Outdoor Storage—Turco Products Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

Rust Bar No. 20 Protective Coating for Metal Parts, Indoor Storage—Turco Products Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

Ry-Alloy Tool Steel—Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

Ry-Arm Special Steel—Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

Ry-ax Special Steel for Car Axles—Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

Ry-Case Steel—Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

Ryco Machinery Steel—Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

Ryex Expanded Metal—Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

Ryertex Plastic Bearings—Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.

S

S & D Floater Ball Bearing Wheel—Sanford-Day Iron Works, Inc., Dale Ave., Knoxville, Tenn.

S-A Conveying, Elevating Screening & Transmission Equipment—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

S & P Burners, Filters, Regulators, Heat Exchanges—Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.

Sackrete Plants Sackrete-Sackrete Inc., Apple & Vandalla Aves., Cincinnati 23, Ohio.

Saco Speed Reducers—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Sacon Belt Conveyor Carriers—Stephens-Adamson Manufacturing Co., 7 Ridgeway Ave., Aurora, Ill.

Safe-Line Wire Rope Clamps—National Production Co., 4561 St. Jean Ave., Detroit 13, Mich.

Safe-T Stopers—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.

Safe-T-Head Pins & Rivets for Chains—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Safety Circle Induction Motors—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Safety—One

Safety—Ensign

Safety—Laughlin

Safety—Hoist

Safety—Hewitt

Safety—Estate

Safety—Phila

Safety—St. Paul

Safety—Truck

Safety—1791

Safety—N. Y.

Safety—Sacramento

Safety—Ohio

Safety—Mixed

Safety—Applic

Safety—Salem

Safety—Bellevue

Safety—Salsburg

Safety—Sandow

Safety—Bellevue

Safety—Cincinnati

Safety—Sand

Safety—Wood

Safety—Indiana

Safety—Phila

Safety—Saurm

Safety—Rubin

Safety—Ave.

Safety—SC P

Safety—Corpor

Safety—beth

Safety—Scand

TRADE NAMES

Safety First Grip Wire Rope Clips—The Thomas Laughlin Co., 143 Fore St., Portland 6, Ore.

Safety Fuse Blasting Fuse—The Ensign-Bickford Co., Simsbury, Conn.

Safety Hoist Hooks—The Thomas Laughlin Co., 143 Fore St., Portland 6, Ore.

Safety-Lift Lever Hoists—Coffing Hoist Co., 800 Walter St., Danville, Ill.

Sagamore Hose and Belting—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo, N. Y.

St. Louis Fire Clay Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

St. Paul Hydraulic Hoists—Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo 14, N. Y.

Sakrete Dry Pre-Mixed Concrete—Sakrete, Inc., Apple & Vandallia Aves., Cincinnati 23, Ohio.

Sakrete Mortar Mix Dry Pre-Mixed Mortar—Sakrete, Inc., Apple St. & Vandallia, Cincinnati 23, Ohio.

Sakrete Watertite Concrete—Damp-proofing—Sakrete, Inc., Apple St. & Vandallia, Cincinnati 23, Ohio.

Salem Elevator Buckets—Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.

Salsbury Model 600—Salsbury Motors, Inc., 1201 Lexington, Pomona, Calif.

Sandow Conveyor & Elevator Belt, Sand Suction Hose—Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio.

Sand Spun Cast Iron Pipe—R. D. Wood Co., Public Ledger Bldg., Independence Sq., Philadelphia 5, Penn.

Saurin Hose and Belting—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo, N. Y.

SC Precision Concrete Control—Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.

Scandilex Cotton Belting—Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J.

Scandinavia Cotedge Cotton Belting—Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J.

Scandinavia Cotton Belting, Belt Dressing, Brake Lining—Scandinavia Belting Co., 250 Central Ave., Newark, N. J.

Schaffer Lime Hydrator—Arnold & Weigel, Inc., Woodville, Ohio.

Scheneck Elevator Buckets—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Schneible Multi-Wash Dust Collecting Systems—Claude B. Schneible Co., 2827 - 25th St., Detroit 16, Mich.

Schramm Air Compressors—Schramm, Inc., Virginia Ave., West Chester, Penn.

Schultress Lime Hydrators—McGann Manufacturing Co., P.O. Box 1187, York, Penn.

Scoopmobile Materials Moving Machine—Mixermobile Manufacturers, 6855 N. E. Halsey, Portland 16, Oregon.

Scraper Haulers Hoists—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.

Screw-Lift Vertical Screw Conveyor Elevators—Screw Conveyor Corp., 700 Hoffman St., Hammond, Ind.

Screw-Veyar Screw Conveyors—Screw Conveyor Corp., 700 Hoffman St., Hammond, Ind.

SD Drag Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Seaco Welding Products—Stulz-Sickles Co., 134 Lafayette St., Newark 5, N. J.

Seal-Clad Motors—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Sea Lion Belt Oil—Chicago Belting Co., 113 N. Green St., Chicago, Ill.

Seal Rock Hose, Air Drill & Hose (Water, Steam, Suction & Discharge)—Pioneer Rubber Mills, 333 Sacramento St., San Francisco 11, Calif.

Sealmaster Ball Bearing Units—Stephens-Adamson Manufacturing Co., 7 Ridgeway, Aurora, Ill.

Seco Vibrating Screens—Screen Equipment Co., Inc., 9 Lafayette Ave., Buffalo 13, N. Y.

Secomet Diamond Wheels—J. K. Smit & Sons, Inc., 157 Chambers St., New York 7, N. Y.

Securityflex All Rubber Portable Cable—Anaconda Wire & Cable Co., 25 Broadway, New York, N. Y.

Selectro Vibrating Screens—Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill.

Self-Hardening Hard Surfacing Metal—Stoody Co., 1134 W. Slauson Ave., Whittier, Calif.

Semalu High Alumina Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Seneca Bearings, Belt Idlers—Webster Mfg., Inc., Tiffin, Ohio.

Seneca Hose and Belting—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo, N. Y.

Series 71 Two Cycle Diesel Engines—Detroit Diesel Engine Div., 13400 W. Outer Drive, Detroit 23, Mich.

Service Conveyor Belts—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

700 Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

76 Elevator Belting & Steam Hose—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

Shaw Sand Classifiers—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Sheppard All American Diesel Engines—R. H. Sheppard Co., Philadelphia St., Hanover, Penn.

Shield-Arc DC Welders—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.

Shunk Earth-Moving Blades—Shunk Mfg. Co., Auto Ave., P. O. Box 431, Bucyrus, Ohio.

Shunt Flo Steam and Air Meters—Builders—Providence, Inc., 9 Coddling St., Providence 1, R. I.

Shurite Electrical Measuring Instruments—J.B.T. Instruments, Inc., 441 Chapel St., New Haven, Conn.

Shur-Shake Vibrator Screens—Iowa Manufacturing Co., 916 16th St., N.E., Cedar Rapids, Iowa.

Side-Dozer Dozers—La Plant-Choate Mfg. Co., Cedar Rapids, Iowa.

Sika No. 3A Accelerator and Plasticizer—Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.

Sika No. 4A, Quicksetting, Moderate Pressure—Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.

Silent Hoist Winches, Capstans, Coal Slicer Hoists, Car and Barge Movers—Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.

Silverlink Roller Chains, Sprockets for Conveyors, Elevators and Power Transmission—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Silverstreak Silent Chain Drives—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Simplex Electric Wires & Cables—Simplex Wire & Cable Co., 79 Sidney St., Cambridge 39, Mass.

Simplex Belt Conveyor Carriers—Stephens-Adamson Manufacturing Co., 7 Ridgeway, Aurora, Ill.

Simplex-Jenny Pullers—Templeton, Kenly & Co., 1020 S. Central Ave., Chicago 44, Ill.

Simplicity Gyration Screens, D'centegrators and Dewatering Wheels—Simplicity Engineering Co., Oak St., Durand, Mich.

Sincolube Greases—Sinclair Refining Co., 630 5th Ave., New York, N. Y.

Sinden Box Car Loaders—Stephens-Adamson Manufacturing Co., 7 Ridgeway, Aurora, Ill.

Sirocco Fans—American Blower Corp., Box 58, Roosevelt Park Annex, Detroit 32, Mich.

Skinner Calcining Furnaces—Colorado Iron Works Co., 1624 17th St., Denver 2, Colo.

Skipulter Shaking Conveyors—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

SKF Ball and Roller Bearings, Transmission Appliances—SKF Industries, Inc., Front St. & Erie Ave., Philadelphia, Penn.

Skookum Hose (Water, Steam, Suction & Discharge)—Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Skullgard Protective Hats—Mine Safety Appliances Co., Brad-dock, Thomas & Meade Sts., Pittsburgh 8, Penn.

SL-800 Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Slo-Speed Gear Motors—Sterling Electric Motors, Inc., 5401 Anaheim-Telegraph Rd., Los Angeles 22, Calif.

Sluggard Hammer Crushers—Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.

Sly Dust Collectors—The W. W. Sly Manufacturing Co., 4700 Train Ave., Cleveland 2, Ohio.

SM Combination Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

Smith Concrete Mixers—T. L. Smith Co., 2835 N. 32nd St., Milwaukee 10, Wis.

Smith-Mobile Truck Mixers and Agitators—T. L. Smith Co., 2835 N. 32nd St., Milwaukee 10, Wis.

Snyder Automatic Samplers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Sobex-Kuntz Kiln—Lime & Hydrate Plants Co., P. O. Box 1387, York, Penn.

Soilfitter Lime & Limestone Spreaders—General Implement Corp., 629 Euclid Ave., Cleveland 14, Ohio.

Sonobrite Concrete, Mortar Colors—L. Sonneborn Sons, Inc., 88 Lexington Ave., New York

Southern Woven Asbestos Brake and Transmission Lining—Southern Friction Materials Co., P. O. Box 1475, Charlotte 1, N. C.

Southwest Excavating Equipment—Southwest Welding & Mfg. Co., 3201 West Mission Road, Alhambra, Calif.

Space-Saver Lift Trucks—Hyster Co., 2938 N. E. Clackamas, Portland 8, Oregon.

Spartan Sand Suction Hose—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

Spearwell Road Machinery—Spears-Wells Machinery Co., Inc., 1832 West 9th St., Oakland, Calif.

Speedaire Fan-Cooled Speed Reducers—The Cleveland Worm & Gear Co., 3249 East 80th St., Cleveland 4, Ohio.

Speed Star Drilling Machines—The Star Drilling Machine Co., 475 Washington St., Akron 11, Ohio.

Speeder Shovels, Cranes, Draglines, Pull Shovels, Trallors, Pile Drivers, Trench Hogs—Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9

Speedline Portable Asphalt Plants—Iowa Manufacturing Co., 916 16th St., N. E., Cedar Rapids, Iowa

Speed-O-Matic Shovels, Draglines, Cranes, Pile Drivers, Trench Hogs—Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.

Speedomax Recorders—Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.

Speed-Set Product Control for Gyration Crushers—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Speed-Trol Variable Speed Transmissions—Sterling Electric Motors, Inc., 5401 Anaheim-Telegraph Rd., Los Angeles 22, Calif.

Spiralweave Cables—The Okonite Co., Passaic, N. J.

SRDA Grinding Agent for Cement—Dewey & Almy Chemical Co., 60 Whittemore Ave., Cambridge 40, Mass.

SS Dryers—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

SS-Plus Chain—Link-Belt Co., 220 S. Belmont Ave., Indianapolis 6, Ind.

SSS Conveyor Belt—Goodall Rubber Co., 5 So. 36th St., Philadelphia 4, Penn.

S.S.S. Red Ring Dredging Sleeves—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

SS-Unit Motor & Centrifugal Pump—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Sta-Kleen Vibrating Screens—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Standard Diesel Fuel, Fuel Oil, Gasoline—Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif.

Standard Hose, Packing—Quaker Rubber Corp., Conly & Milnor Sts., Philadelphia 24, Penn.

Standard Steel Products—Standard Steel Corp., 5001 Boyle St., Los Angeles, Calif.

Sta-Put Industrial Lubricants—E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penn.

Star Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Static-Safety V-Belts—Gates Rubber Co., 999 Broadway, Denver 17, Colo.

Sta-Tru Long-Slot Woven Wire Screen—Ludlow-Saylor Wire Co., Newstead Ave. & Wabash R.R., St. Louis 10, Mo.

Stearns Magnetic, Magnetic Pulleys and Separators—Stearns Magnetic Manufacturing Co., 675 S. 28th St., Milwaukee 4, Wis.

Steel Cable V-Belts—Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Steelcar Industrial Cars—Pressed Steel Car Co., Inc., Industrial Div., 2500 Koppers Bldg., Pittsburgh 30, Penn.

Steelex Couplings—The Falk Corp., 3001 W. Canal, Milwaukee 8, Wis.

Steegrip Belt Lacing, Gear Pulleys—Armstrong-Bray & Co., 5364 Northwest Highway, Chicago 30, Ill.

Stellite Special Alloy Castings and Welding Rod for Hard-Facing, Iron-Base Alloy Hard Facing Rod, Cutting Tools—Haynes Stellite Co., Harrison & Lindsay Sts., Kokomo, Ind.

Stellite 98 M2 Cutting Tools—Haynes Stellite Co., Harrison & Lindsay Sts., Kokomo, Ind.

Sterling Hoists, Pumps—Sterling Machinery Corp., 405-13 Southwest Blvd., Kansas City 8, Mo.

Stirling Boilers—The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.

Stone Saw—Stone Machinery Co., Inc., Manlius, N. Y.

Stonetex Concrete Paint—Truscon Laboratories, Inc., Caniff & Grand Trunk R. R., Detroit 11, Mich.

Stonewall Asbestos Cement Board—The Ruberoid Co., 500 Fifth Ave., New York, N. Y.

Stonewall Air Hose—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

Stoodite Hard Surfacing Metal—Stoody Co., 1129 W. Slauson St., Whittier, Calif.

Stoody High Carbon High Carbon Electrode—Stoody Co., 1129 W. Slauson St., Whittier, Calif.

Stoody Manganese Manganese Electrode—Stoody Co., 1129 W. Slauson St., Whittier, Calif.

Stoody 1, Hard Surfacing Metal—Stoody Co., 1129 W. Slauson St., Whittier, Calif.

Stoody 6 Hard Surfacing Metal—Stoody Co., 1129 W. Slauson St., Whittier, Calif.

TRADE NAMES

Straight Cylindrical Roller Bearing—Roller Bearing Co. of America, P.O. Box 480, Trenton 3, N. Y.

Straight-Line Crusher Plants—Gründler Crusher & Pulverizer Co., 2915 N. Market St., St. Louis, Mo.

Straub-Universal Concentrating Tables—Straub Manufacturing Co., 507 Chestnut, Oakland, Calif.

Strayer Portable Concrete Mixing Plant—Erie Steel Construction Co., Geist Rd. & NKP Railroad, Erie, Penn.

Strayer Electric Clamshell Buckets, Portable Concrete Mixing Plants—Erie Steel Construction Co., Geist Road & NKP Railroad, Erie, Penn.

Streamaire Air Conditioning Units—Young Radiator Co., 709 S. Marquette St., Racine, Wis.

Sub-Set Bits Core Drill Bits—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.

Subway Air Hose—Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia, Penn.

Sun Grease, Oil, Wire Rope Lubricants—Sun Oil Company, 1608 Walnut St., Philadelphia 3, Penn.

Sunex Securityflex Mining Machine Cable (electrical)—Anacanda Wire & Cable Co., 25 Broadway, New York 4, N. Y.

Sunset Conveyor & Elevator Belting & Hose (Water, Steam, Suction & Discharge)—Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Supercac Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7

Super-Durabelt Conveyor Belt—Robins Conveyors Inc. (Div. of Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J.

Superduty Concentrating Tables—The Deister Concentrator Co., 915 Glasgow Ave., Fort Wayne, Ind.

Super-Everware Conveyor Belt—Robins Conveyors Inc. (Div. of Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J.

Super Excelco Conveyor Belt—Republic Rubber Div., Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio.

Super-Gyaloy Wire Screen Cloth—Robins Conveyors Inc. (Div. of Hewitt-Robins Inc.), 270 Passaic Ave., Passaic, N. J.

Super-Loy Woven Wire Screen—Ludlow-Saylor Wire Co., 600 S. Newstead Ave., St. Louis 10, Mo.

Super-Tough Goggles—Willson Products, Inc., 2nd and Washington Sts., Reading, Penn.

Superior Bodies, Floorings, Hoists, Perforated Metal, Tanks and other Steel Products—Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.

Superior Diesel Engines—The National Supply Co., 1401 Sheridan Ave., Springfield, Ohio.

Superior Gyrratory and Jaw Crushers—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Super Jaw Jaw Crushers—Gründler Crusher & Pulverizer Co., 2915 N. Market St., St. Louis, Mo.

Super-Loy—Woven Wire Screen & Wire Cloths—Ludlow-Saylor Wire Co., Newstead Ave. & Wabash R.R., St. Louis 10, Mo.

Super-Loy Hardfacing Welding Rod—Resisto-Loy Co., 127 Bayville St. S. W., Grand Rapids 7, Mich.

Supermal Buckets, Chains—The Jeffrey Manufacturing Co., 935 N. 4th St., Columbus 16, Ohio.

Super-Master Conveyor Belting—The Manhattan Rubber Manufacturing Division of Raybestos—Manhattan, Inc., 61 Willett St., Passaic, N. J.

Super-Oilite Bearings & Cores, Bar & Plate Stock—Chrysler Corp., Amplex Div., 6501 Harper Ave., Detroit 11, Mich.

Super-Salem Elevator Buckets—Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.

Super Service S Portable Power Cables & Welding Cables—General Cable Corp., 420 Lexington Ave., New York 17, N. Y.

Super-Slugger Hammer Crushers—Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.

Super Tandem Portable Rock Plants—Iowa Manufacturing Co., 916 - 16th St., N.E., Cedar Rapids, Iowa.

Super-Tough Glass Lenses—Willson Products, Inc., 2nd & Washington Sts., Reading, Penn.

Supreme Hammer Mills—Gründler Crusher & Pulverizer Co., 2915 N. Market St., St. Louis, Mo.

Supremus Conveyor Belts—Robins Conveyors Inc., 2700 Passaic Ave., Passaic, N. J.

Sure-Prime Pumps—Jaeger Machine Co., 550 W. Spring St., Columbus 16, Ohio.

Surfaceweld Arc Welding Electrode—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.

Sutton Sand Dryers—Indiana Foundry Co., 154 Clymer Ave., Indiana, Penn.

Sutton, Steele & Steele Gravity and Electrostatic Separators—Sutton, Steele & Steele, Inc., 1031 South Haskell, Dallas 10, Texas.

Swing Crane, Tractor Crane—Trackson Co., Milwaukee, Wis.

Swing Sledge Hammer Mills—Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass.

Swintek Dredging Ladders—American Manganese Steel Div., 377 14th St., Chicago Heights, Ill.

Swintek Dredging Ladders—Eagle Iron Works, 129 Holcomb, Des Moines 4, Iowa.

Swiveloader Box Car Loaders—Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.

Sykes Gears—Farrel-Birmingham Co., Inc., Ansonia, Conn.

Sykes Herringbone Gears and Reducers—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.

Symetro Gearboxes—F. L. Smidth & Co., 60 East 42nd St., New York 17, N. Y.

Synchro-Operator Automatic Motor or Generator Synchronizing Control—Allis-Chalmers Manufacturing Co., 1945 Prodroc St., Milwaukee, Wis.

SynchroGear Gear-Motor—U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles, Calif.

Synchro-Meter Electric Telemeter—Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio.

Synchro-Valve Diaphragm Control Valve—The Bristol Company, Waterbury 91, Conn.

Synflow Concrete Coating & Synthetic Rubber Lining—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

Syntron Vibrators, Electric Hammers, Electric Tools, Vibrating Packers, Gasoline Hammers, Rock Drills—Syntron Co., 450 Lexington Ave., Homer City, Tenn.

T

Tamptite Special Dynamite Cartridge—Hercules Powder Co., 900 Market, Wilmington, Del.

Tank Type Belt Conveyor Trippers—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Tannate Belt Lacing, Belt Preserver, Leather Packings—J. E. Rhoads & Sons, 35 N. Sixth St., Philadelphia 6, Penn.

Tautline Conveying Cableways—Sauerman Bros., Inc., 522 S. Clinton St., Chicago 7, Ill.

Taylor Spiral Welded and Riveted Pipe—Taylor Forge & Pipe Works, Box 485, Chicago, Ill.

Taylor Forge Forged Steel Flanges—Taylor Forge & Pipe Works, Box 485, Chicago, Ill.

TDA Dispersing Agent & Catalyst for Portland Cement—Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass.

Teco Steel Dump Bodies—Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo 14, N. Y.

Tell-Board Bulletin Boards—Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Penn.

Tellevel Bln Level Indicators—Stephens-Adamson Manufacturing Co., 7 Ridgeway, Aurora, Ill.

Telsmith Belt Conveyors, Bucket Elevators, Cone Crushers, Gyraseph Crushers—Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis.

Ten-Oil Oils—Sinclair Refining Co., 630 5th Ave., New York, N. Y.

Tensile Bolt Belting Cloth—Newark Wire Cloth Co., 351 Vernon Ave., Newark 4, N. J.

Tensilite Chute Lining—Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Texdrive V-Belt Sheaves—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Texiron V-Belt Sheaves—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Texrope V-Belt Drive Products—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Texsteel V-Groove Sheaves—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Texverse V-Belt Sheave—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Texway Motor Bases for Texrope Drives—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Thermalloy Heat, Corrosion and Abrasion resisting alloy—American Brake Shoe Co., Electro-Alloys Div., Taylor St. and Abbey Rd., Elyria, Ohio.

Thermit Welding Equipment & Supplies—Metal & Thermit Corp., 120 Broadway, New York 5, N. Y.

Thermo-Blocks Brake Blocks—Thermoid Co., Whitehead Rd., Trenton 6, N. J.

Thermo-Humidigraph Combination Temperature & Humidity Recorder—The Bristol Company, Waterbury 91, Conn.

Thermoid Brake Lining—Thermoid Co., Whitehead Rd., Trenton 6, N. J.

Thermoid Wire Back Brake Lining—Thermoid Co., Whitehead Rd., Trenton 6, N. J.

Thermolith Refractory Mortar—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Thermomill Mills Combination Conical Mill, Dryer, and Air Classifier—Hardinge Co., Inc., 240 Arch St., York, Penn.

Thermoverter Thermal Converter for use with Potentiometers & Millivoltmeters for Measuring A-C Electrical Power—The Bristol Company, Waterbury 91, Conn.

Thor Drill Bits, Hose Couplings, Drilling Steel & Accessories, Electric Hammers, Hoists, Pneumatic Drills—Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.

Thor Fire Brick—Mexico Refractories Co., Love and Cole Sts., Mexico, Mo.

Thor Transmission Belt—The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio.

Thornton Four-Rear Wheel-Drives & Automatic Locking Differentials—Thornton Tandem Co., 8701-79 Grinnell Ave., Detroit 13, Mich.

Thornton Automatic-Locking Differential—Thornton Tandem Co., 8701-79 Grinnell Ave., Detroit 13, Mich.

Thornton Differentials—The Truckstell Co., 1672 Union Commerce Bldg., Cleveland 14, Ohio.

Thornton Tandem Four Rear Wheel Drive—The Truckstell Co., 1672 Union Commerce Bldg., Cleveland 14, Ohio.

Thoro-Mix Self Contained Single Paddle Mixers—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Thrustair Centrifugal Pumps—Pennsylvania Pump & Compressor Co., Easton, Penn.

Tiger Brand Wire Rope & Fittings—American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio.

Tilted Dozers—R. G. LeTourneau Inc., 2301 North Adams, Peoria 3, Ill.

Timang Manganese Nickel Steel Welding Rod, Bars & Plates—Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

Timken Tapered Roller Bearings, Steel, Seamless Steel Tubing, Rock Bits—The Timken Roller Bearing Co., Canton 6, Ohio.

Tiny Tim Portable Electric Generating Set—Continental Motors Corp., Muskegon, Mich.

Tirax Drying and Grinding Mills—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

Tirex Neoprene Sheathed, Flexible Electric Wires & Cables—Simplex Wire & Cable Co., 71 Sidney St., Cambridge 24, Mass.

Tisco Manganese and Alloy Steel Castings & Permanent Magnets—Taylor-Wharton Iron and Steel Co., High Bridge, N. J.

Titan Electric Hoists—Detroit Hoist & Machine Co., 824 Morrow Ave., Detroit, Mich.

Titan Helical Reducers—Foot Bros. Gear & Machine Corp., 5225 S. Western Blvd., Chicago 20, Ill.

Tobin Bronze Welding Rod—The American Brass Co., 2114 Meadow, Waterbury 88, Conn.

Toe-Saver Boots & Shoes—Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia, Penn.

Toledo Scales—Toledo Scale Co., Telegraph Rd., Toledo 12, O.

Toledo-Chronoflex Conveyor Scales—Builders—Providence, Inc., 9 Coddling St., Providence 1 R. I.

Ton-Cap Screen Cloth—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Tooface Welding Rod—American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.

Tool Steel Gears, Liners (Pump), Sheaves, Sprockets, Wheels (Crane & Sprocket)—The Tool Steel Gear & Pinion Co., 211 Township Ave., Cincinnati 16, Ohio.

Torque Master Friction Clutches—T. B. Woods's Sons Co., Fifth Ave., Chambersburg, Penn.

Torridor Unit Heater—The Trane Co., 2nd & Cameron Ave., La Crosse, Wis.

Tote-All Conveyors—Material Movement Industries, 310 E. Michigan Ave., Chicago 4, Ill.

Tournacranes—R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.

Tournalift Portable Hoist, Lift Unit—R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.

Tournapull Earth Movers—R. G. LeTourneau, Inc., 2301 North Adams St., Peoria 3, Ill.

Tournarope Rone—R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.

Tournatrails Wagons—R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.

Tournatruck Flat-Bed Hauling Unit—R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.

Tournaweld Welding Trucks—R. G. LeTourneau, Inc., 2301 North Adams, Peoria 3, Ill.

Tower Hose—Republic Rubber Div., Lee Rubber & Tire Corp., Albert St., Youngstown 1, Ohio.

Tower Draglines—Sauerma Bros., Inc., 522 S. Clinton St., Chicago 7, Ill.

Towermobile Portable Elevating Unit—Mixermobile Manufacturers, 6855 N. E. Halsey, Portland 16, Oregon.

TRADE NAMES

Track-Link Plates—Allied Steel Products, Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio.

Tractair Self-Propelled Compressors—LeRoi Co., 1706 S. 68th St., Milwaukee 14, Wis.

Trade-Z-Mark Chain—Webster Mfg., Inc., Tiffin, Ohio.

Trailmobile Trailers—The Trailer Company of America, 31st & Robertson Ave., Cincinnati, Ohio.

Transtacker Battery-Powered Hand Lift Truck with Motorized Stackers—Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill.

Transtactor Hand Tractor—Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill.

Transport Truck Mixers, Plant Mixers—Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo.

Transporter, Battery-Powered Hand Lift Trucks—Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill.

Travelmix Bituminous Mixing Plants—Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.

Traxcavator Tractor—Mounted Shovels—Trackson Co., Milwaukee 1, Wis.

Trenchliner Trencher, Ditcher—Parsons Co., Newton, Iowa.

Tribune Hose—Continental Rubber Works, 1902 Liberty St., Erie, Penn.

Tri-Clad Electric Motors—General Electric Co., 1 River Rd., Schenectady 5, N. Y.

Tricoeal Waterproof Surface Coatings—American Fluoresit Co., Inc., 635 Rockdale, Cincinnati 29, Ohio.

Trident Water & Liquid Meters—Neptune Meter Co., 50 W. 50th St., New York 20, N. Y.

Trimix Air Entraining Agent—L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.

Triple-A Protective Coatings for Metal, Concrete, Stucco, Wood, etc.—Quigley Co., Inc., 527 5th Ave., New York 17, N. Y.

Triplex Pumps—C. H. & E. Manufacturing Co., 3849 N. Palmer St., Milwaukee 12, Wis.

Trix Wet Separators—F. L. Smith & Co., 11 West 42nd St., New York 18, N. Y.

Trojan Explosives—Trojan Powder Co., 17th N. 7th St., Allentown, Penn.

Troup Fire Clay Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

Tube Borium Hard Facing Alloy—Stoody Co., 1129 W. Slauson, Whittier, Calif.

Truck Engineering Trailers—Truck Engineering Corp., 1285 W. 70th St., Cleveland, Ohio.

Truckmaster Motor Truck Scales—Toledo Scale Co., Telegraph Rd., Toledo 12, Ohio.

Truckstell (Trucks) Conversions—Truckstell Co., 1672 Union Commerce Bldg., Cleveland 14, Ohio.

Truclifts Lift Trucks—Clark Tractor Co., 114 Springfield Pl., Battle Creek, Mich.

Tructors Lift, Tilting and Tearing Trucks—Clark Tractor Co., 114 Springfield Pl., Battle Creek, Mich.

Tructors Load Carrying Trucks and Tractors—Clark Tractor Co., 114 Springfield Pl., Battle Creek, Mich.

Trucure Curing for Concrete—Truscon Laboratories, Inc., Canfield & Grand Trunk R. R., Detroit 11, Mich.

Trueline Rake Classifiers—Morse Bros. Machinery Co., 2900 Broadway, Denver 1, Colo.

Truflex V-Belts—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Trukbukit Hoists and Buckets—Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.

Truk-Loder, Truck Loader—Truk-Loder Co., 45 Grace St., Tiffin, Ohio.

Truscon Steel Buildings and Flooring—Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio.

Truss-Frame Belt Conveyor Carrier—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Truxmore Trailing Third Axles—The Truckstell Co., 1672 Union Commerce Bldg., Cleveland 14, Ohio.

TS, TR, TG, T, Vulco Fan Belts—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

Tube Borium Hard Facing Metal—Stoody Co., 1134 W. Slauson Ave., Whittier, Calif.

Tubex Quarry Blasting Unit—Independent Explosives Co., 455 Leader Bldg., Cleveland

Tubulair Spray Dryers, Dispersion Dryers—Western Precipitation Corp., 1016 W. 9th St., Los Angeles 15, Calif.

Tufalloy Abrasion-Resisting Steel—H. K. Porter Co., Inc., 1932 Oliver Bldg., Pittsburgh, Penn.

Tugger Electric Hoists—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

Tu-Line Hose—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

Tulsa Truck Winches—Truck Equipment Co., Inc., 1791 Fillmore Ave., Buffalo, N. Y.

Tung-Alloy Hard Facing Welding Rod—The Resisto-Loy Co., 127 Bayliss St., S. W., Grand Rapids 7, Mich.

Turbinair Air Motors—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.

Turbo-Vacuum Water Chiller Compressor—The Trane Co., 2nd & Cameron Ave., La Crosse, Wis.

Turreteer Platform Lift Industrial Truck—Salsbury Motors, Inc., 1201 Lexington, Pomona, Calif.

Turretting Tractor Type Industrial Trucks—Salsbury Motors, Inc., 1201 Lexington, Pomona, Calif.

Tuveborium Hard Facing Alloy—Stoody Co., 1134 W. Slauson St., Whittier, Calif.

20th Century Needle Bearing—Roller Bearing Co. of America, Box 480, Trenton 3, N. J.

Twin-Disc Clutches & Couplings—Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.

Twin Dryer Asphalt Plants—Universal Engineering Corp., 625 C. Ave. N.W., Cedar Rapids, Iowa.

Twintilt Bag Handling Warehouse Truck—Sackrete, Inc., Apple & Vandalla Aves., Cincinnati 23, Ohio.

Twinveyor Portable Electric Conveyors—Clark Tractor Co., 114 Springfield Pl., Battle Creek, Mich.

Twinweld Hose—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo, N. Y.

Two-in-One Hammer Mills—Gruendler Crusher & Pulverizer Co., 2915 N. Market St., St. Louis, Mo.

Two-Tone T. H. or H. C. Welding Rod—The Resisto-Loy Co., 127 Bayliss St., S. W., Grand Rapids 7, Mich.

Tycol Oils and Greases—Tide Water Associated Oil Co., 17 Battery Pl., New York 4, N. Y.

Ty-Lab Testing Sieve Shaker—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Tyler-Niagara Mechanical Vibrating Screens—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Ty-Loy Screen Cloth—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Type A1W Hard Facing Electrodes—Universal Power Corp., 764 Carnegie Ave., Cleveland

Type B Pulverizers—The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.

Type E Pulverizers—The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.

Type 400 Electric Screens—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Type H Stirling Boilers—The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.

Type 30 Air Hose—The Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, Ohio.

Ty-Rock Mechanical Vibrating Screens—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Ty-Rod Screen Cloth—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Ty-Speed Vibrators—The W. S. Tyler Co., 3615 Superior St., Cleveland 14, Ohio.

Tyson Cageless Tapered Roller Bearings—Tyson Bearing Corp., Massillon, Ohio.

Typetty Reduction Crusher—Traylor Engr. & Mfg. Co., Tenth & Mill Sts., Allentown, Penn.

U

Unax Combined Kilns and Coolers—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

Unicon Portable Belt Conveyor—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Unidan Compartment Mills—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

Uni-Kom Compartment Mills—F. L. Smidth & Co., 11 West 42nd St., New York 18, N. Y.

Union Wire Rope—Allied Steel Products, Inc., 1721 N. B. C. Bldg., Cleveland 14, Ohio.

Union-Formed Wire Rope—Union Wire Rope Corp., 21st and Manchester, Kansas City, Mo.

Union Ordinary Wire Rope—Union Wire Rope Corp., 21st and Manchester, Kansas City, Mo.

Unit Belt Conveyor Carrier—Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

Unit Hose—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo, N. Y.

Unit 1/2 & 3/4 yd. Excavators, 5 & 10 Ton Cranes (Mobile & Crawler)—Unit Crane & Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis.

Unictact Relay for Close Control of Temperature With Bristol's Tyromaster—The Bristol Company, Waterbury 91, Conn.

Unitair Stationary Air Compressors—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.

U. S. All Rubber Goods—U. S. Rubber Co., 1230 Sixth Ave., New York 20, N. Y.

Unitized Plant Portable Crushing Plant—Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Iowa.

Unitherm Unit Heater (Centrifugal Fan Type)—Clarage Fan Co., North & Porter Sts., Kalamazoo 16, Mich.

Uni-Thop Circuit Breakers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Universal Concentrating Table—Straub Mfg. Co., Inc., 507 Chestnut St., Oakland 7, Calif.

Universal Conveyor Belts—Robbins Conveyors Inc., 270 Passaic Ave., Passaic, N. J.

Universal Gasoline Generator Sets & Marine Engines—Universal Motor Co., 186 Harrison St., Oshkosh, Wis.

Universal Gear Oil—The Texas Co., 135 East 42nd St., New York 17, N. Y.

Universal Giant Couplings, Hangers, Pillow Blocks and Motor Pulleys—T. B. Wood's Sons Co., Fifth Ave., Chambersburg, Penn.

Universal Jaw Crushers, Pulverizers, Roll Crushers—Universal Engineering Corp., 625 C. Ave., N. W. Cedar Rapids, Iowa.

Universal Monitor Nozzles for Stripping, Sluicing, etc.—Universal Nozzle Co., 2939 Pennsylvania St., Indianapolis 5, Ind.

Universal Pipe Tamping Machines, Packerhead Pipe Machines, Elevators and Mixers—Universal Concrete Machinery Co., Inc., 297 S. High St., Columbus 15, Ohio.

Universal Vibrating Screens—Universal Vibrating Screen Co., Deane Blvd. & St. Paul R. R., Racine, Wis.

Universal "Vibro-Tamp" Block Machines—Universal Concrete Machinery Co., Inc., 297 S. High St., Columbus 15, Ohio.

Universal Welding Supplies—Universal Power Corp., 764 Carnegie Ave., Cleveland 15, Ohio.

Univibe Vibratory Riddles—Universal Vibrating Screen Co., Deane Blvd. & St. Paul R. R., Racine, Wis.

Univisco Vibrating Riddles—Universal Vibrating Screen Co., Deane Blvd. & St. Paul R. R., Racine, Wis.

UP Vibrating Screens—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.

U-Re-Lite Enclosed Electric Circuit Breakers, I-T-E Circuit Breaker Co., Elizabeth & Hamilton Sts., Philadelphia 30, Penn.

Ursa Lubricating Oil—The Texas Co., 135 East 42nd St., New York 17, N. Y.

USS Alloys—Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham 2, Ala.

USS Grinding Balls, Floor Plate, Steel Products—Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 30, Penn.

USS American Wire Fencing—American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, Ohio.

USS American Wire Fencing—Tennessee Coal, Iron & Railroad Co., Birmingham 2, Ala.

USS Blue Bonnet Bag Ties—Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham 2, Ala.

USS Cyclone Wire Belting and Metal Belting—Cyclone Fence Division, American Steel & Wire Co., Waukegan, Ill.

USS National Boiler Tubes—National Tube Co., Frick Bldg., Pittsburgh, Penn.

Utah Electro-Magnetic Vibrating Feeders, Screens, Conveyors, Dryers—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Utah Steel Castings and Liners—The Elmco Corp., Salt Lake City 8, Utah.

Utilitrac Carrying and Tearing Fork Trucks—Clark Tractor Co., 114 Springfield Pl., Battle Creek, Mich.

Utility Air Hoists—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

Utility Blue Cement Colors—Utility Color Co., 377-99 Frelinghuysen Ave., Newark 5, N. J.

Utility Green Colors—Utility Color Co., 377-99 Frelinghuysen Ave., Newark 5, N. J.

V

Vacuum Process for Accelerating Curing Concrete—Vacuum Concrete, Inc., 4210 Sansom St., Philadelphia 4, Penn.

Valve-Aloy Hard Facing Welding Rod—Resisto-Loy Co., 127 Bayliss St., S. W., Grand Rapids 7, Mich.

Valvolite Packing—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

Vanderwerp recuperators—Manitowoc Engineering Works, Manitowoc, Wis.

Vapocarb Electric Furnaces—Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Penn.

Vapometer—Combustible Gas Indicator—Davis Emergency Equipment Co., Inc., 45 Halleck St., Newark 4, N. J.

VariDrive Drives, Variable Speed—U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles 54, Calif.

Vari-Pitch Adjustable Speed V-Belt Sheaves—Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

Variaped Rock Spreader—Iowa Manufacturing Co., 916 16th St., N. E., Cedar Rapids, Iowa.

TRADE NAMES

Vari-Stroke Ore Feeders—Morse Bros. Machinery Co., 2300 Broadway, Denver 1, Colo.

Varnon Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Veeloid Oils and Greases—Tide Water Associated Oil Co., 17 Battery Place, New York 4, N. Y.

Veetjet Nozzles—Spraying Systems Co., 4021 W. Lake St., Chicago 24, Ill.

Veelos V-Belting and Balata Belting (Transmission & Conveyor)—Manheim Manufacturing & Belting Co., Manheim, Penn.

Velox Grease—Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.

Velvetouch Clutch Facings, Brake Linings and Bearings—The S. K. Wellman Co., 1374 E. 51st St., Cleveland 3, Ohio.

Venex First Aid Snake Bite Kit—E. D. Bullard Co., 275 8th St., San Francisco 3, Calif.

Ventura Exhaust Fans—American Blower Corp., Box 58, Roosevelt Park Annex, Detroit, Mich.

Venturafin Unit Heaters—American Blower Corp., Box 58, Roosevelt Park Annex, Detroit, Mich.

Venturi Flow Meters—Builders-Providence, Inc., 9 Coddling St., Providence 1, R. I.

Vertiflow Unit Heaters—Young Radiator Co., 709 S. Marquette St., Racine, Wis.

Vertivent Unit Heaters, Ventilators—Young Radiator Co., 709 S. Marquette St., Racine, Wis.

Vibra-Flow Vibrating Feeders, Feeder Machines—Syntron Co., 450 Lexington Ave., Homer City, Penn.

Vibrapak Vibrating Concrete Block Machines—Besser Manufacturing Co., Alpena, Mich.

Vibrator Vibrating Screens—Stephens-Adamson Manufacturing Co., 7 Ridgeway, Aurora, Ill.

Vibrator Electric Vibrating Screens, Dryers, Feeders, Coolers, Conveyors—The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, Ohio.

Vibrex Vibrating Screens—Robins Conveyors Inc., 2700 Passaic Ave., Passaic, N. J.

Vi-Brik-Crete—Power Operated Brick Concrete Machines—R. S. Reed Corp., E. Hoffman St., Three Rivers, Mich.

Victaulic Pipe Fittings, Pipe Couplings—Victaulic Corp. of America, 30 Rockefeller Plaza, New York 20, N. Y.

Victor Balata Belting—Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y.

Victor Conveyor & Elevator Belting—Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.

Vike Graphite Plastic—Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.

Viking Diesel Engine 30 to 650 HP Marine, Stationary—Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y.

Viking 11 Gasoline (Gas) Engine 250 to 600 HP Marine, Stationary—Sterling Engine Co., 1270 Niagara St., Buffalo 13, N. Y.

Viking Fire Brick—Mexico Refractories Co., Better Refractories Bldg., Mexico, Mo.

V-Line Aluminum Pallets—Florida Die Casting Co., Orlando, Fla.

Vilo Motor Oils—Keystone Lubricating Co., 21st & Clearfield Sts., Philadelphia 32, Penn.

Vim Belt Lubricant—E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penn.

Vim Tred Leather Belting—E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penn.

Vinsol Air Entraining Agent—Hercules Powder Co., 946 King St., Wilmington 99, Del.

Vinsol Resin Grinding Aid and Cement Additive—Hercules Powder Co., 900 Market, Wilmington, Del.

Vital Diesel & H. D. Oils—E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Penn.

Vitalic Mechanical Rubber Goods—Continental Rubber Works, 1902 Liberty St., Erie, Penn.

V. R. D. Variable Roller Drive Speed Transmission—Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Penn.

V-S Drive Electric Adjustable Speed Drives & Speed Indicators—Reliance Electric & Engr. Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio.

Vulcan Kilns, Coolers, Dryers, Calciners—Vulcan Iron Works, 730 S. Main St., Wilkes-Barre, Penn.

Vulco Steel Single Groove V-Belt Sheaves—The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.

W

Wabbly Weave Woven Wire Screen Cloth—Harris Steel Products Co., 420 Lexington Ave., New York 17, N. Y.

Wagner Brakes, Electric Motors, Electric Transformers, Brake Lining—Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.

Wagner Cranes, Shovels—The Browning Crane & Shovel Co., 163rd & Waterloo Rd., Cleveland 10, Ohio.

Wallabout Hose and Belting—Hewitt Rubber Corp., 240 Kensington Ave., Buffalo, N. Y.

Wall Manila Quarry Drilling Cable—Wall Rope Works, Inc., 48 South St., New York 5, N. Y.

Walsh Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Walsh Plastic Furnace Lining Plastic Fire Brick—Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

Warco Fire Brick, Kiln Liners—Walsh Refractories Corp., 4070 North First St., St. Louis 7, Mo.

Warco Road Machinery—W. A. Riddell Corp., Warren St., Bucyrus, Ohio.

Warco XXX Fire Brick, Kiln Liners—Walsh Refractories Corp., 4070 N. First St., St. Louis 7, Mo.

Ward La France Motor Trucks and Truck-Tractors—Ward La France Truck Div., Elmira, N. Y.

Warren 800 Vibrating Block Machine—Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga.

Watson Brown—Lipe Auxiliary Transmissions—The Truckstell Co., 1672 Union Commerce Bldg., Cleveland 14, Ohio.

Waukesha Internal Combustion Engines—Waukesha Motor Co., P. O. Box 379, Waukesha, Wis.

Wayne Cranes, Power Shovels, Draglines, Clamshells—American Steel Dredge Co., Inc., 2511 Taylor St., Ft. Wayne 1, Ind.

Waytrol Precision Weighing Machine—The Jeffrey Manufacturing Co., 935 N. 4th St., Columbus 16, Ohio.

Weartex Interwoven Cotton Conveyor and Elevator Belting—Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y.

Wearweld Arc Welding Electrode—Lincoln Electric Co., 12818 Colt Rd., Cleveland 1, Ohio.

Weber Lime Hydrator—Arnold & Weigle, Inc., Woodville, Ohio.

Weigh-Flow Gravimetric Weighing Feeders—Syntron Co., 450 Lexington Ave., Homer City, Penn.

Weighman Automatic Scale Beam—Merrick Mfg. Co., 180 Autumn St., Passaic, N. J.

Weightometer Conveyor Scales—Merrick Scale Manufacturing Co., 180 Autumn St., Passaic, N. J.

Weinig Flotation Machines—Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.

Weidells Fittings for Pipe Welding—Taylor Forge & Pipe Works, Box 485, Chicago, Ill.

Welding Jelly Arc Weld Preparation—Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

Well Built Aluminum Pallets—Southwest Steel Sales Co., 100 W. Amelia St., Orlando, Fla.

Wellman Cardumpers, Gas Producers, Capstans, Cranes, Furnaces—The Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio.

Wellman-Galusha Clean Gas Generators—Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio.

Wemco Agitators, Classifiers, Feeders, Hydro-separators, Pumps, Samplers, Thickeners—Western Machinery Co., 760 Folsom St., San Francisco, Calif.

Western Electric Blasting Caps, Delay Electric Blasting Caps—Western Cartridge Co., Div. of Olin Industries, Inc., East Alton, Ill.

Western Black Powder & Caps (Blasting, Electric, Delay)—Equitable Powder Mfg. Co., East Alton, Ill.

Western Big Inch Blasting Caps—Western Cartridge Co., Div. of Olin Industries, Inc., East Alton, Ill.

Wharton Cylinders for High Pressure Gases, Railway Trackwork—Taylor-Wharton Iron and Steel Co., High Bridge, N. J.

Whirlpool Portable Agitators—H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Penn.

Whirlwind Centrifugal Air Separators—Sturtevant Mill Co., 41 Harrison Squ., Boston 22, Mass.

Whitcomb Locomotives—The Whitcomb Locomotive Co., 940 Park St., Rochelle, Ill.

White Ring Dredging Sleeves—Goodall Rubber Co., Inc., 5 So. 36th St., Philadelphia 4, Penn.

WHS Reducers—Winfield H. Smith, Inc., 1000 Rockland Ave., Springfield, Erie County, N. Y.

Wickwire Spencer Conveyor Belts—Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y.

Wilbert Continental Burial Vault Forms—Wilbert W. Haase Co., 1005 Troost Ave., Forest Park, Ill.

Wilbert-Way Vault Lowering Device—Wilbert W. Haase Co., 1005 Troost Ave., Forest Park, Ill.

Wilfley Gravity Concentrating Tables—Morse Bros. Mch. Co., 2900 Broadway, Denver 1, Colo.

Wilfley Sand Pumps & Gravity Concentrating Tables—The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Station, Denver, Colo.

Williams Buckets—The Wellman Engr. Co., 7000 Central Ave., Cleveland 4, Ohio.

Willson-Weld Goggles & Helmets—Willson Products, Inc., 2nd & Washington Sts., Reading, Penn.

Wilson Arc Welding Machines—Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.

Wilson Shovels, Spades, Scoops—Wood Shovel & Tool Co., Piqua, Ohio.

Wingfoot Belt Dressing, Transmission Belt and Water Hose—The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, Ohio.

Wire Rope Corp. of America Wire Rope—Meekum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.

Wiregrip Belt Hooks and Lacers—Armstrong-Bray & Co., 5364 Northwest Highway, Chicago

Wiscolay Preformed Wire Rope—Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y.

Wisconsin Gasoline Engines—Wisconsin Motor Corp., 1910 S. 53rd St., Milwaukee 14, Wis.

Wissco Screens, Metal Conveyor Belts, Perforated Metals & Specialty Wire—Wickwire Spencer Steel, Div. of The Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y.

Wisscolay Wire Rope—Wickwire Spencer Steel, Div. of The Colorado Fuel & Iron Corp., 361 Delaware Ave., Buffalo 2, N. Y.

Witte Diesel & Gasoline Engines—Witte Engine Works, Div. of Oil Well Supply Co., 1600 Oakland Ave., Kansas City 3, Mo.

WK Electrode Holder—Albert & J. M. Anderson Mfg. Co., 291 A St., Boston 10, Mass.

Wolverine Diesel Engines—Wolverine Motor Wks., Inc., 36 Union St., Bridgeport 2, Conn.

Wonderful Hose—Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Penn.

Won Way Truck Bodies, Cars and Trailers—Easton Car & Construction Co., Box 270, Easton, Penn.

Wood Gas Producers, Sand Spun Pipe, C. I. Fittings, Valves—R. D. Wood & Co., 400 Chestnut St., Philadelphia, Penn.

Wood Shovels, Spades, Scoops—Wood Shovel & Tool Co., Piqua, Ohio.

Woodbury Slime Classifiers and Jigs—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Woodford Haulage System and Accessories—The Woodford Engr. Co., 77 W. Washington St., Chicago 2, Ill.

Woodland Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

WR-16-20-23-26-28 Insulating Refractory Brick—Walsh Refractories Corp., 4070 N. 1st St., St. Louis 7, Mo.

Wriget- Nozzles—Spraying Systems Co., 4021 W. Lake St., Chicago 24, Ill.

Wylam Acid Refractory Brick—Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburgh 22, Penn.

Wynn 50-60-70 High Alumina Brick—General Refractories Co., 1600 Real Estate Trust Bldg., Philadelphia 7, Penn.

X

XX Crushing Rolls—Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Y

Yale Hand Lift Trucks, Electric Trucks, Hand & Electric Hoists—Yale & Towne Mfg. Co., Philadelphia Div., 4530 Tacony Ave., Philadelphia 24, Penn.

Yellow Strand Wire Rope, Wire Rope Slings—Broderick & Bascom Rope Co., 4203 N. Union Blvd., St. Louis 15, Mo.

York-Kuntz Automatic Lime Kilns & Rotary Dryers—Lime & Hydrate Plants Co., 233 E. Poplar St., York, Penn.

Z

Zeph-Air Compressors—Sullivan Machinery Co., Woodland Ave., Michigan City, Ind.

Zephyrcrane Pneumatic Tired Cranes—Link-Belt Speeder Corp., 301 W. Pershing Rd., Chicago 9, Ill.

Zilicon Integral Waterproofing—Truscon Laboratories, Inc., Caniff & Grand Trunk R. R. Detroit 11, Mich.

Zonax Coolers—F. L. Smith & Co., 60 East 42nd St., New York 17, N. Y.

Zonolite Insulating Material—Universal Zonolite Insulation Co., 135 S. La Salle St., Chicago 3, Ill.